

US EPA RECORDS CENTER REGION 5



483020

1987

INVOICES

G.S.X. 57
00

RETURN BENEFITANCE STUD WITH PAYMENT

A-120 (REV. 7-62)

GSX WASTE SERVICES OF OHIO/DAYTON DIVISION
1746 N. GETTYSBURG AVE.
DAYTON, OH 45427

TO MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

2-01-0950

DATE 02-28-87

ACCOUNT NO. 738700

BALANCE DUE 1,338.06

GSX 738700

CHECK NUMBER

GSX DAYTON DIVISION
P.O. BOX 33440-C-260
LOUISVILLE, KY 40232-3440

888260073870050133806000000

REFER ALL INQUIRIES TO: 513-268-8110
260 GSX WASTE SERVICES OF OHIO/DAYTON DIVISION
1746 N. GETTYSBURG AVE.
DAYTON, OH 45427

ACCOUNT NO. 738700

ORIGINAL DOCUMENT FOR MONSANTO COMPANY
W.F. DAYTON

OPENING BAL		956.06	
PAYMENTS THRU 2-04		946.53	
SERVICE LOCATION		1515 NICHOLAS ROAD	
01/26	1.00 CONTAINER PULL		8000
01/26	30.00 YARDS DISPOSAL		10500
01/28	1.00 CONTAINER PULL		8000
01/28	30.00 YARDS DISPOSAL		10500
01/29	1.00 CONTAINER PULL		8000
01/29	30.00 YARDS DISPOSAL		10500
02/28	MONTHLY SERVICE CHARGE		391.53
LOCATION TOTAL		946.53	
TOTAL THIS INVOICE		946.53	
PREVIOUS BALANCES	120 DAYS	120 DAYS	90 DAYS
	.00	.00	.00
			391.53
<p>A LATE CHARGE OF 1 1/2% PER MONTH (AN ANNUAL PERCENTAGE RATE OF 18%) MAY BE IMPOSED ON ANY BALANCE NOT PAID WHEN DUE. TO AVOID THE IMPOSITION OF A LATE CHARGE, FULL PAYMENT OF THE AMOUNT DUE MUST BE RECEIVED BEFORE YOUR NEXT CLOSING DATE.</p>			1,338.06
<p>PAYMENT DUE BY 2-28-87 PLEASE RETURN REMITTANCE SLIP WITH PAYMENT</p>			

Monsanto

INVOICE DISTRIBUTION

UNITED STATES MARSHAL SERVICE

0044148

TELEPHONE NUMBER

ACCHASE INDEX NUMBER
36874

[illegible]

GSX WASTE SERVICES OF OHIO/DAYTON DIVISION
 1766 N. GETTYSBURG AVE.
 DAYTON, OH 45427

INVOICE NO. 12-01-0941

DATE 12-31-86

ACCOUNT NO. 738700

BALANCE DUE 956.06

GSX 90

TO MONSANTO COMPANY
 1515 NICHOLAS ROAD
 DAYTON OHIO

45418

CHECK NUMBER

PRINT TO

GSX DAYTON DIVISION
 P.O. BOX 33440-C-260
 LOUISVILLE, KY 40232-3440

888260073870050095606000000

REFER ALL INQUIRIES TO: 513-268-8110
 260 GSX WASTE SERVICES OF OHIO/DAYTON DIVISION
 1766 N. GETTYSBURG AVE.
 DAYTON, OH 45427

ACCOUNT NO.: 738700
 FOR MONSANTO COMPANY

OPENING BAL		391.53	
PAYMENTS THRU 12-31		.00	
11/21	SERVICE LOCATION	1.00	
11/21		30.00	
12/31			
ORIGINAL DOCUMENT 1515 NICHOLAS ROAD JAN CONTAINER FULL YARDS - DISPOSAL MONTHLY SERVICE CHARGE LOCATION TOTAL 564.53			8000 9300 39153
TOTAL THIS INVOICE		564.53	56453
PREVIOUS BALANCE	391.53		39153
A LATE CHARGE OF TWO PER MONTH (AN ANNUAL PERCENTAGE RATE OF 24%) MAY BE IMPOSED ON ANY BALANCE NOT PAID WHEN DUE TO AVOID THE IMPOSITION OF A LATE CHARGE, FULL PAYMENT OF THE AMOUNT DUE MUST BE RECEIVED BEFORE YOUR NEXT CLOSING DATE.			39153
PAYMENT DUE BY 1-15-87			39153

INVOICE DISTRIBUTION

A-120 (REV. 7/80)

GSX WASTE SERVICES OF OHIO/DAYTON DIVISION PAGE 2

FROM

1766 N. GETTYSBURG AVE.
DAYTON, OH 45427

INVOICE NO

3-31-0961

DATE

3-31-87

ACCOUNT NO

738700

BALANCE DUE

2,145.56

GSX

CHECK NUMBER

AMOUNT PAID

TO

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

PREMIT
TO

GSX DAYTON DIVISION

P.O. BOX 33440-C-2403

LOUISVILLE, KY

85000021070050214556000000
4023208000
177

REFER ALL INQUIRIES TO

260 GSX WASTE SERVICES
1766 N. GETTYSBURG AVE
DAYTON, OH 45427

3-23 513-268-81199:03
OF OHIO/DAYTON DIVISION

ACCOUNT NO

738700

FOR

MONSANTO COMPANY

PRCHS. NO. NUM. 036874

3/31

3/31

3/31

3/31

MONTHLY SERVICE CHARGE

MONTHLY SERVICE CHARGE

MONTHLY SERVICE CHARGE

MONTHLY SERVICE CHARGE

LOCATION TOTAL 1,199.03

3933

11762

7832

15426

GSX
Waste Services Company

TOTAL THIS INVOICE

119903

PREVIOUS
BALANCES

120 DAYS

120 DAYS

60 DAYS

60 DAYS

30 DAYS

.00

.00

.00

.00

946.53

94653

A LATE CHARGE OF 1% PER MONTH (AN ANNUAL PERCENTAGE RATE OF 12%) MAY BE IMPOSED ON ANY BALANCE NOT PAID WHEN DUE. TO AVOID THE IMPOSITION OF A LATE CHARGE, FULL PAYMENT OF THE AMOUNT DUE MUST BE RECEIVED BEFORE YOUR NEXT CLOSING DATE.

214556

PAYMENT DUE BY 3-27-87

PLEASE RETURN REMITTANCE SLIP WITH PAYMENT

INVOICE DISTRIBUTION

A-130 (REV. 7/82)

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICE

DATE **08/31/87**
INVOICE **0887-2600110050**

ACCOUNT NO
10050

BALANCE DUE
\$1,487.77

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD
POB D36874

REMIT
TO

DAYTON COM. << 260>>
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070014877700000

REFER ALL INQUIRIES TO (513) 268-8110

ACCOUNT NO 10050

DAYTON COM. << 260>>

1515 NICHOLAS ROAD

INVOICE: 0887-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		
09/01/87	Monthly Charge for SEP	02YD	78.86
09/01/87	Monthly Charge for SEP	03YD	117.62
09/01/87	Monthly Charge for SEP	04YD	78.32
09/01/87	Monthly Charge for SEP	08YD	156.26
08/19/87	Regular Lifts	1 X 30YD	80.00
08/19/87	Landfill Charge # 3841	30YD 40.	140.00
08/06/87	Payment	REF: 755905	430.00CR

IN

650 86

9-16	45418	
10-16	45418	
11-16	45418	
12-16	45418	
1-16	45418	
2-16	45418	
3-16	45418	
4-16	45418	
5-16	45418	
6-16	45418	
7-16	45418	
8-16	45418	
9-16	45418	
10-16	45418	
11-16	45418	
12-16	45418	

LAIDLAW
WASTE SYSTEMS

08/31/87

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

30,000,000

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
650.86	834.21	.00	.00

PLEASE DO NOT STAPLE CHECK TO REMITTANCE STUB.

30,000,000

FAILURE TO PAY AHEADS WILL RESULT IN SUSPENSION

INVOICE DISTRIBUTION

A-120 REV. 7/68

WASTE SYSTEMS

THIS IS YOUR INVOICE

DATE
INVOICE

05/31/87
0587-2600110050

ACCOUNT NO
10050

BALANCE DUE
\$1,737.77

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD

PO# D36874

DAYTON COM. << 260>>
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070017377700000

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT. TERMS: NET 30 DAYS.

REFER ALL INQUIRIES TO (513) 268-8110

ACCOUNT NO 10050

DAYTON COM. << 260>>

1515 NICHOLAS ROAD

INVOICE: 0587-2600110050

DATE	DESCRIPTION	YDS WGT	AMOUNT
	BALANCE FORWARD		\$1,321.72
06/01/87	Monthly Charge	02YD	78.66
06/01/87	Monthly Charge	03YD	117.62
06/01/87	Monthly Charge	04YD	78.32
06/01/87	Monthly Charge	08YD	156.26
05/08/87	Regular Lifts	1 X 30YD	80.00
05/21/87	Regular Lifts	1 X 30YD	80.00
05/08/87	Landfill Charge @ 797	30YD 40.	150.00
05/21/87	Landfill Charge @ 4385	30YD 10.1	106.05
05/01/87	Payment	REF: 723748	430.86Cn

<input type="checkbox"/>	ORIGINAL DOCUMENT	
PLANT NUMBER	MONSANTO DAYTON	DATE
WORK ORDER NUMBER		72
6-75	846-91	
ISSUED TO	SUB - J BOX	
RE WORK	WASH. YSC BKT	
BY PERSON & NAME OF	NO. REC'D - 07	
DATE	RECEIVED CODE	
PURCHASER APPROVED		
CHECK NUMBER		

L A I D L A W
WASTE SYSTEMS

05/31/2005

TERMS: NET 10 DAYS
INVEST IN OVER 1000 PAYS
2.5% PER MONTH

846.91
~~846.91~~

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
846.91	890.86	.00	.00

**TO INSURE PROPER CREDIT TO YOUR ACCOUNT, PLEASE
RETURN REMITTANCE STUB WITH YOUR PAYMENT.**

81,737.77

BALANCE SHEET

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

INVOICE DISTRIBUT

REMIT TO-NUMBER					PURCHASE ORDER NUMBER												
ACCOUNT					AMOUNT		C R		Tax Code		MATERIAL CODE		QUANTITY		OTHER		
CO	DIV	LOC	MAIN	SUB	CLASS									TYPE		DETAIL (15 CHARACTERS)	
0063712																	
13	022760	79	052			846	91			34P							

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICE

DATE 06/30/87
INVOICE 0687-2600110050

ACCOUNT NO
10050

BALANCE DUE
\$430.86

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

4541R

1515 NICHOLAS ROAD
POB D36874

DAYTON COM. << 260 >>
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070004308600000

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT. TERMS NET 10 DAYS

REFER ALL INQUIRIES TO (513) 268-8110

ACCOUNT NO 10050

DAYTON COM. << 260 >>

1515 NICHOLAS ROAD

INVOICE: 0687-2600110050

DATE	DESCRIPTION	YDS WGT	AMOUNT
	BALANCE FORWARD		\$1,737.77
07/01/87	Monthly Charge for JUL	02YD	78.66
07/01/87	Monthly Charge for JUL	03YD	117.62
07/01/87	Monthly Charge for JUL	04YD	78.32
07/01/87	Monthly Charge for JUL	08YD	156.26
06/22/87	Payment	REF: 44696	846.91CR
06/09/87	Payment	REF: 738165	890.86CR

<input type="checkbox"/> ORIGINAL DOCUMENT			
PLANT NAME	MONSANTO DAYTON		DATE JUL 7 1987
INVOICE NO	0063712		IN
DATE	7-15	430.86	
AMOUNT			
DATE			
AMOUNT			
DATE			
AMOUNT			
DATE			
AMOUNT			
DATE			
AMOUNT			

LAIDLAW
WASTE SYSTEMS

06/30/87

TERMS NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1.2% PER MONTH

\$430.86

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
430.86	.00	.00	.00

TO INSURE PROPER CREDIT TO YOUR ACCOUNT, PLEASE
RETURN REMITTANCE STUB WITH YOUR PAYMENT.

\$430.86

BALANCE DUE

Monşanto

INVOICE DISTRIBUTION

[illegible]

Monsanto

INVOICE DISTRIBUTION

MEMO NUMBER

36874

53 ACCOUNT
CO LOC MAIN SUB CLASS

1302276079 052

AMOUNT

43086

TAX
H CODE

34P

MATCH

DS 5-5

WASTE SYSTEMS

**THIS IS YOUR
INVOICE**

DATE 04/30/87
INVOICE 0487-0110050

ACCOUNT NO
10050

BALANCE DUE
81,321.72

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

S
1515 NICHOLAS ROAD
E
PO# D36874

REMIT
TO

DAYTON COM. << 260>>
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070013217200000

REFER ALL INQUIRIES TO (513) 268-8110
DAYTON COM. << 260>>
INVOICE: 0487-0110050

ACCOUNT NO 10050
1515 NICHOLAS ROAD

DATE	DESCRIPTION	YRS. WST.	AMOUNT
	BALANCE FORWARD		\$1,629.89
05/01/87	Monthly Charge for MAY	02YD	78.66
05/01/87	Monthly Charge for MAY	03YD	117.62
05/01/87	Monthly Charge for MAY	04YD	78.32
05/01/87	Monthly Charge for MAY	08YD	156.26
04/01/87	Regular Lifts	1 X 30YD	80.00
04/08/87	Regular Lifts	1 X 30YD	80.00
04/01/87	Landfill Charge # 3402	30YD 40.	150.00
04/08/87	Landfill Charge # 3455	30YD 40.	150.00
04/08/87	Payment	REF: 710272	1,199.03CR

ORIGINAL DOCUMENT						NW 1 2 28
PLANT NAME	MORGANSTON DIVISION				CITY	STATE
POWER USE NUMBER						NET TON
5-10-37						890.86
REMARKS						DATE
ALL WORK						DATE
AT POWER						DATE
SW						DATE
SW						DATE
OTHER WORK						DATE
OTHER WORK						DATE
OTHER WORK						DATE

LAI DLAW
WASTE SYSTEMS

04/30/87

**INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH**

~~81-321-72~~

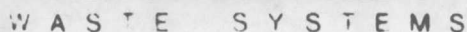
TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
890.86	50.00	.00	.00

TO INSURE PROPER CREDIT TO YOUR ACCOUNT, PLEASE
RETURN REMITTANCE STUB WITH YOUR PAYMENT.

FAILURE TO PAY AGREARS WILL RESULT IN SUSPENSION

INVOICE DISTRIBUTION

A-130 REV 7/82



DATE _____
INVOICE _____

03/31/87
0387-0110050

ACCOUNT NO
10050

BALANCE DUE
\$1,629.89

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD

PO# D36874

- 34 -

DAYTON COM. << 260>>
P.O. BOX 33030
LOUISVILLE KY 40232-3030

7772600110050700162989000000

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT. TERMS NET 30 DAYS.

REFER ALL INQUIRIES TO () -
DAYTON COM. << 260>>
INVOICE: 0387-0110050

ACCOUNT NO 10050
1515 NICHOLAS ROAD

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$2,145.56
04/01/87	Monthly Charge for APR	02YD	78.66
04/01/87	Monthly Charge for APR	03YD	117.62
04/01/87	Monthly Charge for APR	04YD	78.32
04/01/87	Monthly Charge for APR	08YD	156.26
03/02/87	Payment	REF: 697777	946.53CR

[illegible]

LAIDLAW
WASTE SYSTEMS

03/31/87

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

438.84
\$1,029.89

TOTAL CURRENT	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
430.86	1,199.03	.00

\$1,629.89

BALANCE DUE

~~TO DAY APPEARS WILL RESULT IN SUSPENSION~~

Monsanto

INVOICE DISTRIBUTION

FORM NUMBER

PER ORDER NUMBER

36874

ACCOUNT
CO. DIV. LOC. MAIN SUB. CLASS

AMOUNT

C R Code

MATERIAL
CODE

QUANTITY

TYPE

OTHER
DETAILS CHARACTER

13 0276079052

430 86 344

US 513



Monsanto

~~40000~~ 37.50

INVOICE DISTRIBUTION

QUOTATION NUMBER

0063712

PLANT ORDER NUMBER

36814

ACCOUNT
CO DIV LOC MAIN SUB CLASS

13 022 76 79 052

AMOUNT

430.86

PLANT CODE

31P

MATERIAL CODE

QUANTITY

TYPE

DS

OTHER
DETAILS CHARACTERS

SB

LADOLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICE

DATE 10/31/87
INVOICE 1037-2600110050

ACCOUNT NO
10050

BALANCE DUE
\$2,133.67

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD

POB 03674

DAYTON COV. <<260>>
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070021386300000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT. TERMS NET 10 DAYS

REFER ALL INQUIRIES TO (513) 242-4110

ACCOUNT NO 10050

DAYTON COV. <<260>>

1515 NICHOLAS ROAD

INVOICE: 1037-2600110050

DATE	DESCRIPTION	YDS. WGT	AMOUNT
	BALANCE FORWARD		11,247.77
11/01/87	Monthly Charge for NOV	02YD	78.66
11/01/87	Monthly Charge for NOV	03YD	117.67
11/01/87	Monthly Charge for NOV	04YD	78.32
11/01/87	Monthly Charge for NOV	03YD	156.25
10/02/87	Regular Lifts	1 X 30YD	80.00
10/15/87	Regular Lifts	1 X 30YD	80.00
10/02/87	Landfill Charge # 0474	30YD 40.	140.00
10/15/87	Landfill Charge # 3381	30YD 40.	140.00

NOV 9 1987

PLANT NAME: MONSANTO

SELECT JOB NAME:

DEBIT 1123

870.86

RECEIVED

DATE: 10/31/87

SIGNATURE: [Signature]

DATE: 10/31/87

LADOLAW
WASTE SYSTEMS

10/31/87

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1.12% PER MONTH

\$2,133.67

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
877.26	434.26	.00	876.01

~~2,133.67~~
BALANCE DUE

AVOID COURT COST - PAY YOUR PAST DUE BALANCE NOW

ionsanto

INVOICE DISTRIBUTION

INVOICE NUMBER

0063712

PURCHASE ORDER NUMBER

36874

ACCOUNT

DIV LOC MAIN SUB CLASS

13022760.79052

AMOUNT

C T R CODE

870.86 34P

MATERIAL CODE

QUANTITY

TYPE

UNIT

LETA

CHARACTERS

PS 513

1988

INVOICES

L A I D L A W

WASTE SYSTEMS

THIS IS YOUR
INVOICE

DATE 01/31/88
INVOICE 0188-2600110050

ACCOUNT NO
10050

BALANCE DUE
\$2,035.16

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD

PON 036874

REMIT
TO

LAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070020351600000

PLEASE DO NOT STAPLE

REFER ALL INQUIRIES TO

(513) 268-8110

ACCOUNT NO

10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: C188-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$1,985.02
02/01/88	Monthly Charge for FEB	02YD	89.16
02/01/88	Monthly Charge for FEB	03YD	130.85
02/01/88	Monthly Charge for FEB	04YD	88.80
02/01/88	Monthly Charge for FEB	09YD	172.19
01/11/88	Payment	REF: 819603	430.86CR

01/31/88

0013532 FEB 0 000

0063742 IN

2.29 481.00

N/L

L A I D L A W
WASTE SYSTEMS

01/31/88

TERMS NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

~~\$2,035.16~~

TOTAL CURRENT

TOTAL 30 DAYS

TOTAL 60 DAYS

TOTAL 90 DAYS & OVER

481.00

777.25

.00

816.91

~~\$2,035.16~~

BALANCE DUE

Monsanto

INVOICE DISTRIBUTION

[illegible]

Laidlaw

WASTE SYSTEMS

THIS IS YOUR
INVOICE

ACCOUNT NO
10050

DATE **02/29/88**
INVOICE **0288-2600110050**

BALANCE DUE
\$962.00

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD
P.O. BOX D36874

REMIT TO
LAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070009620000000

PLEASE DO NOT STAPLE

REFER ALL INQUIRIES TO: (513) 268-4110
LAIDLAW WASTE SYSTEMS
INVOICE: 0288-2600110050

ACCOUNT NO. 10050
1515 NICHOLAS ROAD

DATE	DESCRIPTION	YOB. WGT.	AMOUNT
	BALANCE FORWARD		\$2,035.16
03/01/88	Monthly Charge for MAR	02YD	89.16
03/01/88	Monthly Charge for MAR	03YD	130.85
03/01/88	Monthly Charge for MAR	04YD	88.80
03/01/88	Monthly Charge for MAR	08YD	172.19
02/09/88	Payment	REF: 505024	717.25CR
02/15/88	CREDIT ADJ FE/R # 43252		836.91CR

MAR 7 1988

0083532 IN

3-16 481.00

PAID

BY *N*

DATE *N*

RECEIVED

DEPT. *N*

Laidlaw
WASTE SYSTEMS

02/29/88

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

~~962.00~~

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
481.00	481.00	.00	.00

962.00

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

INVOICE DISTRIBUTION

REMIT TO-NUMBER						PURCHASE ORDER NUMBER											
ACCOUNT						AMOUNT		C R	Tax D	N	MATERIAL CODE	QUANTITY	OTHER TYPE DETAIL (15 CHARACTERS)				
0083532						36874											
CO	DIV	LOC	MAIN	SUB	CLASS												
13	42	76	79	052		481.00							DS S-B				

BALANCE DUE

Monsanto

INVOICE DISTRIBUTI

REMIT TO: V-44

36874

[illegible]



Monsanto

INVOICE DISTRIBUTI

[illegible]

09/27/89 16:58

513 262 6418

MONSANTO

014

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICEDATE 09/30/88
INVOICE 0988-2600110050ACCOUNT NO.
10050BALANCE DUE
\$1,628.25MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD
P.O. # D36874REMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070016282500000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO. 10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: 0988-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$1,718.25
10/01/88	Monthly Charge for OCT	02YD	89.16
10/01/88	Monthly Charge for OCT	03YD	130.85
10/01/88	Monthly Charge for OCT	04YD	88.80
10/01/88	Monthly Charge for OCT	08YD	172.19
09/23/88	Regular Lifts	1 X 30YD	96.25
09/23/88	Landfill Charge \$ 2192	30YD 40.	80.00
09/08/88	Payment	REF: 791311	747.25CR

PAID

CL #
BY #

OCT 19 1988

RECEIVED

OCT 11 1988

MAC-ACCTG. DEPT.
DAYTON, OHIOLAIDLAW
WASTE SYSTEMS

09/30/88

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

\$1,628.25

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
657.25	974.00	.00	.00

\$1,628.25

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

PAYMENTS OR CHARGES NOT SHOWN WILL APPEAR ON NEXT MONTH'S INVOICE

09.27.89 03:42 PM P14

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICE

ACCOUNT NO.
10050

DATE 08/31/88

INVOICE 0888-2600110050

0083532

BALANCE DUE
\$1,718.25

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

RECEIVED

SEP 12 1988

MAC-ACCTG. DEPT.
DAYTON, OHIO

1515 NICHOLAS ROAD

PO# D36874

REMIT
TO

LAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070017182500000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO. 10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: 0888-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$1,404.50
09/01/88	Monthly Charge for SEP	02YD	89.16
09/01/88	Monthly Charge for SEP	03YD	130.85
09/01/88	Monthly Charge for SEP	04YD	88.80
09/01/88	Monthly Charge for SEP	08YD	172.19
08/12/88	Regular Lifts	1 X 30YD	96.25
08/19/88	Regular Lifts	1 X 30YD	96.25
08/12/88	Landfill Charge # 570	30YD 40.	170.00
08/19/88	Landfill Charge # 482281	30YD 30.	127.50
08/09/88	Payment	REF: 762454	657.25CR

PAID

BY #

OCT 13 1988

LAIDLAW
WASTE SYSTEMS

08/31/88

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
971.00	747.25	.00	.00

\$1,718.25

BALANCE DUE

FAILURE TO PAY APPEARS WILL RESULT IN SUSPENSION

☒ 012

L A I D L A W
WASTE SYSTEMS

THIS IS YOUR INVOICE

DATE 07/31/88
INVOICE 0788-2600110Q50

ACCOUNT NO.
10050

BALANCE DUE
\$25404.50

AMOUNT PAID 2

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

RECEIVED

AUG 11 1988

§ 1515 NICHOLAS ROAD

4-1 MACCCTG. DEPT. PO# D36874
DAYTON, OHIO 160.

REMIT
TO

LIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070014045000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110
LAIDLAW WASTE SYSTEMS
INVOICE: 0788-2600

ACCOUNT NO. 10050
1515 NICHOLAS ROAD

[illegible]

PAID

CL #
NY #

AUG 1 2 1988

LADOLAW
WASTE SYSTEMS

07/31/88

**TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH**

\$1,404.50

TOTAL CURRENT

TOTAL 30 DAYS

TOTAL 60 DAYS

	TOTAL 90 DAYS & OVER
1978-79	16
1979-80	10
1980-81	10
1981-82	10
1982-83	10
1983-84	10
1984-85	10
1985-86	10
1986-87	10
1987-88	10
1988-89	10
1989-90	10
1990-91	10
1991-92	10
1992-93	10
1993-94	10
1994-95	10
1995-96	10
1996-97	10
1997-98	10
1998-99	10
1999-00	10
2000-01	10
2001-02	10
2002-03	10
2003-04	10
2004-05	10
2005-06	10
2006-07	10
2007-08	10
2008-09	10
2009-10	10
2010-11	10
2011-12	10
2012-13	10
2013-14	10
2014-15	10
2015-16	10
2016-17	10
2017-18	10
2018-19	10
2019-20	10
2020-21	10
2021-22	10
2022-23	10
2023-24	10
2024-25	10
2025-26	10
2026-27	10
2027-28	10
2028-29	10
2029-30	10
2030-31	10
2031-32	10
2032-33	10
2033-34	10
2034-35	10
2035-36	10
2036-37	10
2037-38	10
2038-39	10
2039-40	10
2040-41	10
2041-42	10
2042-43	10
2043-44	10
2044-45	10
2045-46	10
2046-47	10
2047-48	10
2048-49	10
2049-50	10
2050-51	10
2051-52	10
2052-53	10
2053-54	10
2054-55	10
2055-56	10
2056-57	10
2057-58	10
2058-59	10
2059-60	10
2060-61	10
2061-62	10
2062-63	10
2063-64	10
2064-65	10
2065-66	10
2066-67	10
2067-68	10
2068-69	10
2069-70	10
2070-71	10
2071-72	10
2072-73	10
2073-74	10
2074-75	10
2075-76	10
2076-77	10
2077-78	10
2078-79	10
2079-80	10
2080-81	10
2081-82	10
2082-83	10
2083-84	10
2084-85	10
2085-86	10
2086-87	10
2087-88	10
2088-89	10
2089-90	10
2090-91	10
2091-92	10
2092-93	10
2093-94	10
2094-95	10
2095-96	10
2096-97	10
2097-98	10
2098-99	10
2099-00	10
2100-01	10
2101-02	10
2102-03	10
2103-04	10
2104-05	10
2105-06	10
2106-07	10
2107-08	10
2108-09	10
2109-10	10
2110-11	10
2111-12	10
2112-13	10
2113-14	10
2114-15	10
2115-16	10
2116-17	10
2117-18	10
2118-19	10
2119-20	10
2120-21	10
2121-22	10
2122-23	10
2123-24	10
2124-25	10
2125-26	10
2126-27	10
2127-28	10
2128-29	10
2129-30	10
2130-31	10
2131-32	10
2132-33	10
2133-34	10
2134-35	10
2135-36	10
2136-37	10
2137-38	10
2138-39	10
2139-40	10
2	

747.25

657.25

.00

.00

\$1,404.50

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

09. 27. 89 03:42 PM P12

09/27/89

16:55

513 262 6418

MONSANTO

011

LAIDLAW

WASTE SYSTEMS

008 3532

THIS IS YOUR
INVOICEDATE
INVOICE06/30/88
0688-2600110050ACCOUNT NO.
10050BALANCE DUE
1,234.50

AMOUNT PAID

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

RECEIVED

760.79 052

JUL 11 1988

1515 NICHOLAS ROAD

45 MAC-ACCTG. DEPT. D36874
DAYTON, OHIOREMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070012345000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO. 10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: 0688-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$1,058.25
07/01/88	Monthly Charge for JUL	02YD	89.16
07/01/88	Monthly Charge for JUL	03YD	130.85
07/01/88	Monthly Charge for JUL	04YD	88.80
07/01/88	Monthly Charge for JUL	08YD	172.19
06/29/88	Regular Lifts	1 X 30YD	96.25
06/29/88	Landfill Charge # 4675	30YD 40.	80.00
06/17/88	Payment	REF: 703589	481.00CR
			OK N.M.
			PL. #657.25
			PAID
			CL #
			INV #
			AUG 2 1988

LAIDLAW
WASTE SYSTEMS

06/30/88

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

1,234.50

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
657.25	577.25	.00	.00

1,234.50

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

09.27.89 03:42 PM P11

09/27/89

16:53

513 262 6418

MONSANTO

009

L A I D L A W
 WASTE SYSTEMS

 THIS IS YOUR
 INVOICE

 DATE 12/31/88
 INVOICE 1288-2600110050

 ACCOUNT NO.
 10050

 BALANCE DUE
 \$1,058.25

481.00

AMOUNT PAID

 MONSANTO COMPANY
 1515 NICHOLAS ROAD
 DAYTON OHIO

O.HIO

DEPT.

45418

1515 NICHOLAS ROAD

PO# D36874

REMIT
TO
 LAIDLAW WASTE SYSTEMS
 P.O. BOX 33030
 LOUISVILLE KY 40232-3030

777260011005070010582500000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO. 10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: 1288-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$2,459.50
01/01/89	Monthly Charge for JAN	02YD	89.16
01/01/89	Monthly Charge for JAN	03YD	130.85
01/01/89	Monthly Charge for JAN	04YD	88.80
01/01/89	Monthly Charge for JAN	08YD	172.19
12/14/88	Payment	REF: 888953	1,882.25CR

RECEIVED

JAN 8 1989

MAC-ACCTG. DEPT.
DAYTON OHIO

PAID

JAN 12 1989

MAC-ACCTG. DEPT.
DAYTON, OHIO
L A I D L A W
 WASTE SYSTEMS

12/31/88

 TERMS: NET 10 DAYS
 INTEREST ON OVERDUE PAYMENTS
 OF 1 1/2% PER MONTH

\$1,058.25

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
481.00	577.25	.00	.00

\$1,058.25

BALANCE DUE

FAILURE TO PAY APPEARS WILL RESULT IN SUSPENSION

09.27.89 03:42 PM

09/27/89

16:52

513 262 6418

MONSANTO

008

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICEDATE
INVOICE11/30/88
1188-2600100399ACCOUNT NO.
00399BALANCE DUE
\$350.00MONSANTO COMPANY
P.O. BOX 8, STATION B
DAYTON OH 45407RECEIVED
DEC 12 1988
MAC-ACCTG. DEPT.
DAYTON, OHIO1515 NICHOLAS RD BLDG 1
MONSANTO CO. TEMP 30
PO# D-36874REMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

77726001003998000350000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO 00399

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS RD BLDG 1

INVOICE: 1188-2600100399

MONSANTO CO. TEMP 30

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		430.00
11/09/88	Regular Lifts	1 X 30YD	100.00
11/11/88	Regular Lifts	1 X 30YD	100.00
11/09/88	Landfill Charge # 3990	30YD 30.	60.00
11/11/88	Landfill Charge # 4029	30YD 30.	60.00
<div style="text-align: center;"> <p>PAID</p> <p>DEC 15 1988</p> <p>MAC-ACCTG. DEPT.</p> <p>DAYTON, OHIO</p> <p>OK N.M.</p> <p>12-14-88</p> </div>			

LAIDLAW
WASTE SYSTEMS

11/30/88

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH~~\$350.00~~

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
320.00	.00	30.00	.00

~~\$350.00~~

BALANCE DUE

AVOID COURT COST - PAY YOUR PAST DUE BALANCE NOW

09.27.89 03:42 PM P08

09/27/89 16:51

513 262 6418

MONSANTO

007

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICEDATE 11/30/88
INVOICE 1188-2600110050ACCOUNT NO.
10050BALANCE DUE
\$2,459.50760 79
052MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

DEC 12 1988

1515 NICHOLAS ROAD

45418

PO# D36874

DAY

2 Invoices

REMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070024595000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 40 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110
LAIDLAW WASTE SYSTEMS
INVOICE: 1188-2600110050ACCOUNT NO. 10050
1515 NICHOLAS ROAD

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$2,539.50
12/01/88	Monthly Charge for DEC	02YD	89.16
12/01/88	Monthly Charge for DEC	03YD	130.85
12/01/88	Monthly Charge for DEC	04YD	88.80
12/01/88	Monthly Charge for DEC	08YD	172.19
11/23/88	Regular Lifts	1 X 30YD	96.25
11/25/88	Payment	REF: 863325	657.25CR
<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; right: 0; font-size: 2em;">577.25</div> <div style="position: absolute; bottom: 0; left: 0; font-size: 2em;">PAID</div> <div style="position: absolute; bottom: 10px; left: 0;">DEC 15 1988</div> <div style="position: absolute; bottom: 10px; left: 50px;">MAC-ACCTG. DEPT.</div> <div style="position: absolute; bottom: 10px; left: 75px;">DAYTON, OHIO</div> </div>			
<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; right: 0; font-size: 1.5em;">OK N.M.</div> <div style="position: absolute; bottom: 0; left: 0; font-size: 1.5em;">12-14-88</div> </div>			

LAIDLAW
WASTE SYSTEMS

11/30/88

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

\$2,459.50

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
577.25	1,882.25	.00	.00

\$2,459.50

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

09/27/89 03:42 PM P07

1989

INVOICES

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICEDATE 04/30/89
INVOICE 0489-260011005ACCOUNT NO.
10050BALANCE DUE
\$1,002.00

AMOUNT PAID

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO0083532
700 79
052
454181515 NICHOLAS ROAD
PO D36874REMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070010020000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: 513 268-8110

ACCOUNT NO. 10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE 0489-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		4,444.23
05/01/89	MONTHLY CHARGE FOR MAY	02YD	99.16
05/01/89	MONTHLY CHARGE FOR MAY	03YD	140.85
05/01/89	MONTHLY CHARGE FOR MAY	04YD	98.80
05/01/89	MONTHLY CHARGE FOR MAY	08YD	182.19
04/17/89	PAYMENT	REF 011788	1,063.25CR
MAY 8 1989			
MAC-ACCTG. DEPT.			
DAYTON, OHIO			
PAID			
MAY 26 1989			
MAC-ACCTG. DEPT.			
DAYTON, OHIO			

LAIDLAW
WASTE SYSTEMS

04/30/89

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
521.00	481.00	.00	.00

~~\$1,002.00~~

\$1,002.00

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

09/27/89

16:49

513 262 6418

MONSANTO

005

L A I D L A W

WASTE SYSTEMS

THIS IS YOUR
INVOICEDATE 03/31/89
INVOICE 0389-2600110050ACCOUNT NO.
10050BALANCE DUE
~~31,544.25~~481.00
AMOUNT PAID

0083532

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD
PO D36874REMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070015442500000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: 513 268-8110

ACCOUNT NO. 10050

LAIDLAW WASTE SYSTEMS
INVOICE 0389-2600110050

1515 NICHOLAS ROAD

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$1,544.25
04/01/89	MONTHLY CHARGE FOR APR 02YD		89.16
04/01/89	MONTHLY CHARGE FOR APR 03YD		130.85
04/01/89	MONTHLY CHARGE FOR APR 04YD		88.80
04/01/89	MONTHLY CHARGE FOR APR 08YD		172.19
03/07/89	PAYMENT REF 972162		481.00CR

RECEIVED

APR 7 1989

MAC-ACCTG. DEPT.
DAYTON, OHIO

PAID

APR 12 1989

MAC-ACCTG. DEPT.
DAYTON, OHIOL A I D L A W
WASTE SYSTEMS

03/31/89

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

\$1,544.25

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
481.00	1,063.25	.00	.00

\$1,544.25

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

09.27.89 03:42 PM P05

09/27/89 16:48

513 262 6418

MONSANTO

L A I D L A W
 WASTE SYSTEMS
THIS IS YOUR
INVOICEDATE 02/28/89 004
INVOICE 0289-2600110050ACCOUNT NO.
10050BALANCE DUE
\$1,544.25

0083532

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

RECEIVED

MAR 9 1989

1515 NICHOLAS ROAD
4541 MAC-ACCTG. DEPT. D36874
DAYTON, OHIORFMIT
TOLAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070015442500000

PLEASE DO NOT STAPLE

76079-052

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO:

(513) 268-8110

ACCOUNT NO.

10050

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: 0289-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		\$962.00
03/01/89	Monthly Charge for MAR	02YD	89.16
03/01/89	Monthly Charge for MAR	03YD	130.85
03/01/89	Monthly Charge for MAR	04YD	88.80
03/01/89	Monthly Charge for MAR	08YD	172.19
02/09/89	Regular Lifts	1 X 30YD	96.25
02/09/89	Landfill Charge # 211807	30YD 30.	162.60
02/10/89	Landfill Charge # 211807	30YD 20.	323.40
02/10/89	Payment	REF: 947609	481.00CR

1063.25

pay

PAID

OK N.W. 3-15-89

MAR 14 1989

MAC-ACCTG. DEPT
DAYTON, OHIO
L A I D L A W
 WASTE SYSTEMS

02/28/89

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
1,063.25	481.00	00	.00

\$1,544.25

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

PAYMENTS OR CHARGES NOT SHOWN WILL APPEAR ON NEXT MONTH'S INVOICE

09.27.89 03:42 PM P04

09/27/89

16:47

513 262 6418

MONSANTO

003

LAIDLAW

WASTE SYSTEMS

THIS IS YOUR
INVOICE

DATE 01/31/89
INVOICE 0189-2600100399

ACCOUNT NO.
00399

BALANCE DUE
~~6762.60~~

AMOUNT PAID

MONSANTO COMPANY
P.O. BOX 8 STATION
DAYTON OH 45407

76079
052

1515 NICHOLAS RD BLDG 1
MONSANTO CO. TEMP 30
PO# D-36874

RCMIT
TO

LAIDLAW WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260010039980007626000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO. 00399

LAIDLAW WASTE SYSTEMS

1515 NICHOLAS RD BLDG 1

INVOICE: 0189-2600100399

MONSANTO CO. TEMP 30

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		4820.00
01/11/89	Regular Lifts	1 X 30YD	100.00
01/11/89	Landfill Charge # 0835	30YD 30.	162.60
01/13/89	Payment	REF: 917971	320.00CR
<div style="text-align: center;"> <p>Pay of 262.60</p> <p>451</p> </div>			
<div style="text-align: center;"> <p>RECEIVED</p> <p>FEB 13 1989</p> <p>MAC-ACCTG. DEPT.</p> <p>DAYTON, OHIO</p> </div>			
<div style="text-align: center;"> <p>PAID</p> <p>FEB 13 1989</p> <p>MAC-ACCTG. DEPT.</p> <p>DAYTON, OHIO</p> </div>			

LAIDLAW
WASTE SYSTEMS

01/31/89

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

\$762.60

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
262.60	500.00	.00	.00

\$762.60

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

PAYMENTS OR CHARGES NOT SHOWN WILL APPEAR ON NEXT MONTH'S INVOICE

09.27.89 03:42 PM F01

09/27/89

16:46

513 262 6418

MONSANTO

002

L A I D L A W
WASTE SYSTEMS

THIS IS YOUR
INVOICE

DATE 01/31/89
INVOICE 0189-2600110050

ACCOUNT NO.
10050

BALANCE DUE
962.00

AMOUNT PAID

MONSANTO COMPANY
1515 NICHOLAS ROAD
DAYTON OHIO

45418

1515 NICHOLAS ROAD
PO# D36874

REMIT
TO

L A I D L A W WASTE SYSTEMS
P.O. BOX 33030
LOUISVILLE KY 40232-3030

777260011005070009620000000

PLEASE DO NOT STAPLE

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT - TERMS NET 10 DAYS

REFER ALL INQUIRIES TO: (513) 268-8110

ACCOUNT NO. 10050

L A I D L A W WASTE SYSTEMS

1515 NICHOLAS ROAD

INVOICE: 0189-2600110050

DATE	DESCRIPTION	YDS. WGT.	AMOUNT
	BALANCE FORWARD		41,058.25
02/01/89	Monthly Charge for FEB	02YD	89.16
02/01/89	Monthly Charge for FEB	03YD	130.85
02/01/89	Monthly Charge for FEB	04YD	88.80
02/01/89	Monthly Charge for FEB	08YD	172.19
01/13/89	Payment	REF: 917971	577.25 CR

RECEIVED

FEB 10 1989

MAC-ACCTG. DEPT.
DAYTON, OHIO

PAID

FEB 14 1989

MAC-ACCTG. DEPT.
DAYTON, OHIO

L A I D L A W
WASTE SYSTEMS

01/31/89

TERMS: NET 10 DAYS
INTEREST ON OVERDUE PAYMENTS
OF 1 1/2% PER MONTH

TOTAL CURRENT	TOTAL 30 DAYS	TOTAL 60 DAYS	TOTAL 90 DAYS & OVER
481.00	481.00	.00	.00

BALANCE DUE

FAILURE TO PAY ARREARS WILL RESULT IN SUSPENSION

09.27.89 03:42 PM P02

Attachment C: Monsanto 1988, 10-K filings with Securities
Exchange Commission

1988

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of
the Securities Exchange Act of 1934

For the fiscal year ended December 31, 1988

Commission file number 1-2516

MONSANTO COMPANY

(Exact name of registrant as specified in its charter)

DELAWARE

(State or other jurisdiction of
incorporation or organization)

43-0420020

(I.R.S. Employer
Identification No.)

800 NORTH LINDBERGH BLVD., ST. LOUIS, MO. 63167

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code (314) 694-1000

Securities Registered Pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common Stock \$2 par value	New York Stock Exchange
Common Stock Purchase Rights	New York Stock Exchange
9½% Sinking Fund Debentures due 2000	New York Stock Exchange
8½% Sinking Fund Debentures due 2000	New York Stock Exchange
8¾% Sinking Fund Debentures due 2008	New York Stock Exchange
8.70% Debentures due 1995	New York Stock Exchange
(guaranteed by Monsanto Company)	

Securities Registered Pursuant to Section 12(g) of the Act:

None

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

State the aggregate market value of the voting stock held by nonaffiliates of the registrant: approximately \$6.3 billion as of the close of business on January 31, 1989.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

<u>Class</u>	<u>Outstanding at February 28, 1989</u>
<u>Common Stock, \$2 par value</u>	<u>68,074,129 shares</u>

Documents Incorporated by Reference

1. Portions of Monsanto Company Annual Report to security holders for the year ended December 31, 1988. (Parts I and II of Form 10-K.)
2. Portions of Monsanto Company Notice of Annual Meeting and Proxy Statement dated March 17, 1989. (Part III of Form 10-K.)

PART I

Item 1. BUSINESS.

Monsanto Company and its subsidiaries are engaged in the worldwide manufacture and sale of a widely diversified line of chemical products, man-made fibers and plastics, agricultural products, prescription pharmaceuticals, low-calorie sweeteners and industrial process control equipment. Monsanto Company was incorporated in 1933 under Delaware law and is the successor to a Missouri corporation, Monsanto Chemical Works, organized in 1901. Unless otherwise indicated by the context, "Monsanto" means Monsanto Company and consolidated subsidiaries, and the "Company" means Monsanto Company only.

Recent Developments

In November 1988, Monsanto announced its intention to sell its electronic materials business to Huels AG, a subsidiary of VEBA, AG, a West German company. The sale is expected to be completed in the first part of 1989. The sale will include operations at Milton Keynes, United Kingdom; Kuala Lumpur, Malaysia; and Utsunomiya, Tochigi, Japan as well as at Palo Alto, California; St. Peters, Missouri; and Spartanburg, South Carolina. Monsanto also expects to sell its fifty-percent owned affiliate in Kumi, South Korea.

In February 1989, Monsanto announced an agreement in principle, subject to certain contingencies, to sell the assets used in its worldwide analgesics business to Rhone Poulenc.

Industry Segments; Principal Products

For 1988, Monsanto reported its business under the following industry segments: Crop Chemicals, Animal Sciences, Chemicals, Electronic Materials, Fisher Controls, NutraSweet and Pharmaceuticals. Within the Monsanto organization, Crop Chemicals and Animal Sciences constitute the business of Monsanto Agricultural Company, and Chemicals comprises the business of Monsanto Chemical Company, both of which are operating units of the Company. Pharmaceuticals reflects the business of G. D. Searle & Co., NutraSweet of The NutraSweet Company and Fisher Controls of Fisher Controls International, Inc., all three of which companies are wholly-owned subsidiaries of the Company. The tabular information appearing under "Operating Unit Segment Data" and "Geographic Data" on pages 25 and 30, and the tabular and narrative information appearing under "Segment Information" on pages 41 and 42 of the Company's Annual Report to shareowners for the year ended December 31, 1988 (the "1988 Annual Report"), are incorporated herein by reference. The Chemicals segment reflects the business of Monsanto Chemical Company's organization on December 31, 1988. Effective March 1, 1989, two divisions within the segment were renamed, and a number of products and major plants were shifted between divisions. The Electronic Materials segment, which is included in the incorporated information, is omitted from the data set forth below in this Item 1 due to its planned divestiture in the first part of 1989. This segment produces electronic-grade silicon wafers for the manufacture of integrated circuits and semiconductors.

The following is a list of principal products categorized by major end-use markets within each industry segment:

CROP CHEMICALS

Major End-Use Markets	Major Products	Major End-Use Products & Applications	Major Plants	Major Raw Materials & Components
Agriculture	<i>Roundup</i> ® herbicide and other glyphosate-based herbicides	Multi-purpose, non-selective agricultural, industrial and residential applications	Alvin, TX; Antwerp, Belgium; Fayetteville, NC; Luling, LA; São José dos Campos, Brazil; Zárate, Argentina	Iminodiacetic Acid; Phosphorus Trichloride
	<i>Lasso</i> ® herbicide and other acetanilide family herbicides	Corn, soybean and milo (sorghum) crops	Muscatine, IA; St. Louis, MO	Chloroacetyl Chloride; Diethylaniline
	<i>Far-Go</i> ® herbicide; <i>Avadex</i> ® BW herbicide	Wheat crops	Antwerp, Belgium; Muscatine, IA	Ammonium Thiocyanate; Trichloropropane
	<i>Machete</i> ® herbicide	Rice crops	Muscatine, IA	Chloroacetyl Chloride; Diethylaniline

ANIMAL SCIENCES

Agriculture	<i>Alimet</i> ® feed supplement; <i>MHA</i> ® feed supplement; <i>Santoquin</i> ® antioxidant	Animal feed supplements and preservatives	Alvin, TX; Nitro, WV	Acrolein; Hydrogen Cyanide; Methyl Mercaptan
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CHEMICALS

Detergents and Phosphates

Personal Products	Detergent builders and surfactants; industrial phosphates	Laundry and dish detergents; water conditioners	Alvin, TX; Augusta, GA; Carson, CA; Everett, MA; Kearny, NJ; Long Beach, CA; Luling, LA; Newport, United Kingdom; Ruabon, United Kingdom; St. Louis, MO; São José dos Campos, Brazil; Sauget, IL; Soda Springs, ID; Trenton, MI	Benzene; Caustic Soda; Chlorine; Paraffin; Phosphate Ore; Soda Ash
Food	Food additives	Bakery; dairy	St. Louis, MO; São José dos Campos, Brazil; Trenton, MI	Caustic Soda; Lime; Phosphorus
Chemicals & Other	Industrial phosphates; phosphoric acid	Metal treating, cleaning and etching; plant food fertilizers; clay dispersants	Augusta, GA; Long Beach, CA; St. Louis, MO; Trenton, MI	Phosphorus
	Water treatment chemicals	Scale inhibitors; oil field chemicals	Everett, MA; Newport, United Kingdom	Phosphorus Trichloride

Engineered Products

Capital Equipment	Sulfuric acid plants (design and construction)	Sulfuric acid plants	On-Site Construction	Various construction components
Construction & Home Furnishings	<i>Fome-Cor</i> ® boards	Insulation	Addyston, OH; Anaheim, CA	Polystyrene
	Doormats	Doormats	Chent, Belgium; St. Louis, MO	Polyethylene
Motor Vehicles	<i>Fome-Cor</i> boards	Headliners	Anaheim, CA	Polystyrene

CHEMICALS (Cont'd)

Engineered Products (Cont'd)

<u>Major End-Use Markets</u>	<u>Major Products</u>	<u>Major End-Use Products & Applications</u>	<u>Major Plants</u>	<u>Major Raw Materials & Components</u>
Chemicals & Other	Fome-Cor® boards	Photobacks and other graphic arts uses	Addyston, OH; Anaheim, CA	Polystyrene

Man-made Fibers

Construction & Home Furnishings	Nylon carpet staple; nylon BCF	Broadloom carpet	Greenwood, SC; Pensacola, FL	Ammonia; Cyclohexane; Propylene
Personal Products	Acrilan® acrylic fiber	Sweaters; half-hose; active wear	Decatur, AL	Acrylonitrile
Motor Vehicles	Nylon filament; nylon polymer	Tires; molding resins for auto grilles, bumpers and gears	Pensacola, FL	Ammonia; Cyclohexane; Propylene
Chemicals & Other	Adipic acid	Polyurethanes; coatings; plasticizers; resins	Pensacola, FL	Cyclohexane
	Nylon filament	Rope; cordage; sewing thread; reinforcement for conveyor belts	Greenwood, SC	Ammonia; Cyclohexane; Propylene

Plastics

Motor Vehicles	Cadon® and Triax® thermoplastic resins; Centrex™ polymer; Geolast® thermoplastic elastomers; Lustran® ABS and SAN thermoplastics; Santoprene® thermoplastic rubber; Vydine® nylon molding resins	Automotive interior and exterior molded parts; rack and pinion boots; under the hood applications	Addyston, OH; Antwerp, Belgium; LaSalle, Quebec, Canada; Muscatine, IA; Newport, United Kingdom; Pensacola, FL; Wadsworth, OH; Zárate, Argentina	Acrylonitrile; Butadiene; EPDM Rubber; Maleic Anhydride; Nylon Salt; Polypropylene; Styrene
Construction & Home Furnishings	Cadon and Triax thermoplastic resins; Centrex polymer; Geolast thermoplastic elastomers; Lustran ABS and SAN thermoplastics; Lustrex® polystyrene (ex-U.S. only); Santoprene thermoplastic rubber; Vydine nylon molding resins	Telecommunications; appliances; DW pipe; housewares; gaskets; glazing; seals	Addyston, OH; Antwerp, Belgium; LaSalle, Quebec, Canada; Muscatine, IA; Newport, United Kingdom; Pensacola, FL; São José dos Campos, Brazil; Wadsworth, OH; Zárate, Argentina	Acrylonitrile; Butadiene; EPDM Rubber; Maleic Anhydride; Nylon Salt; Polypropylene; Styrene
Personal Products	Lustran ABS and SAN thermoplastics; Lustrex polystyrene (ex-U.S. only); Triax thermoplastic resins; Vydine nylon molding resins	Consumer electronics; business machines; toys; personal care items; housewares; cosmetic packaging	Addyston, OH; Antwerp, Belgium; LaSalle, Quebec, Canada; Muscatine, IA; Pensacola, FL; São José dos Campos, Brazil; Zárate, Argentina	Acrylonitrile; Butadiene; Nylon Salt; Styrene

CHEMICALS (Cont'd)

Plastics (Cont'd)

Major End-Use Markets	Major Products	Major End-Use Products & Applications	Major Plants	Major Raw Materials & Components
Chemicals & Other	<i>Cadon</i> ® and <i>Triax</i> ® thermoplastic resins; <i>Geolast</i> ® thermoplastic elastomers; <i>Lustran</i> ® ABS and SAN thermoplastics; <i>Santoprene</i> ® thermoplastic rubber; Styrene monomer (ex-U.S. only); <i>Vydyne</i> ® nylon molding resins	Moldings; extruded sheets; compounding; wire and cable jackets; electrical connectors; chemical intermediates	Addyston, OH; Antwerp, Belgium; LaSalle, Quebec, Canada; Muscatine, IA; Newport, United Kingdom; Pensacola, FL; São José dos Campos, Brazil; Wadsworth, OH; Zárate, Argentina	Acrylonitrile; Benzene; Butadiene; EPDM Rubber; Ethylene; Maleic Anhydride; Nylon Salt; Polypropylene; Styrene

Resin Products

Motor Vehicles	<i>Saflex</i> ® polyvinyl butyral sheet	Windshields	Ghent, Belgium; Indian Orchard, MA; Trenton, MI	Butyraldehyde; Ethanol; Polyvinyl Alcohol; Vinyl Acetate Monomer
	Plasticizers; specialty resins	Automotive coatings and sealants	Addyston, OH; Antwerp, Belgium; Bridgeport, NJ; Everett, MA; Indian Orchard, MA; LaSalle, Quebec, Canada	Butanol; Chlorine; Formaldehyde; Melamine; Methanol; Phthalic Anhydride; Toluene
Construction & Home Furnishings	<i>Saflex</i> polyvinyl butyral sheet	Architectural glass	Ghent, Belgium; Trenton, MI	Butyraldehyde; Ethanol; Polyvinyl Alcohol; Vinyl Acetate Monomer
	Specialty resins	Coatings and adhesives	Addyston, OH; Alvin, TX; Indian Orchard, MA; LaSalle, Quebec, Canada; Trenton, MI	Acrylate Esters; Butanol; Formaldehyde; Melamine; Methanol; Urea
	Plasticizers	Vinyl flooring; caulks and sealants; adhesives; wall covering	Antwerp, Belgium; Bridgeport, NJ; Everett, MA; LaSalle, Quebec, Canada	Butanol; Chlorine; 2-Ethylhexanol; Phenol; Phthalic Anhydride; Toluene
Personal Products	<i>Gelva</i> ® multipolymer solutions and emulsions; plasticizers	Medical devices; packaging	Indian Orchard, MA	Acrylate Esters; 2-Ethylhexanol; Phthalic Anhydride
Chemicals & Other	A variety of resin products	Electronics; paper; graphics; coatings	Addyston, OH; Everett, MA; Indian Orchard, MA	Acrylate Esters; Butyraldehyde; Ethanol; Formaldehyde; Maleic Anhydride; Melamine; Methanol; Styrene; Vinyl Acetate Monomer

Rubber Chemicals and Instruments

Motor Vehicles	<i>Santocure</i> ®, <i>Santocure</i> DCBS, <i>Santocure</i> IPS, <i>Santocure</i> MOR, <i>Santocure</i> NS, <i>Santoflex</i> ® 13, <i>Santogard</i> ® PVI, <i>Santoweb</i> ® rubber processing chemicals (accelerators, antidegradants and treated fibers)	Tires; tubes; belts; hoses; retreads; mats; etc.	Antwerp, Belgium; Newport, United Kingdom; Nitro, WV; Ruabon, United Kingdom; Sauget, IL	Aniline; Carbon Disulfide; Para-Nitrochlorobenzene
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CHEMICALS (Cont'd)

Rubber Chemicals and Instruments (Cont'd)

Major End-Use Markets	Major Products	Major End-Use Products & Applications	Major Plants	Major Raw Materials & Components
Personal Products	<i>Flectol</i> ®, <i>Santocure</i> ®, <i>Santocure</i> MOR, <i>Santocure</i> NS, <i>Santoweb</i> ® rubber processing chemicals (antioxidants, accelerators and treated fibers)	Roofing; flooring; tape; industrial hose; etc.	Antwerp, Belgium; Newport, United Kingdom; Nitro, WV; Ruabon, United Kingdom	Aniline; Carbon Disulfide; Tertiary-Butylamine
	<i>Santowhite</i> 5®, <i>Santoflex</i> 44®, <i>Santoflex</i> 77 rubber processing chemicals (antidegradants, antioxidants and antiozonants)	Gasoline additives; plastic antioxidants; water treatment	Nitro, WV; Ruabon, United Kingdom; Sauget, IL	Aniline; Cresols; Nitroaniline
Capital Equipment	Mooney viscometer; rheometers; tensile testers	Instruments for testing tires, rubber and other materials	Akron, OH; Swindon, United Kingdom	Electronic components; machine parts

Specialty Chemicals

Motor Vehicles	Hydraulic fluids and lubricants	Hydraulic fluid for commercial aircraft	St. Louis, MO	Phenol
	Maleic anhydride	Automobile/boat bodies; lube oil additives	LaSalle, Quebec, Canada; Newport, United Kingdom; Pensacola, FL	Benzene; Butane
Pharmaceuticals	Analgesics	Headache/pain relievers; cold remedies; other medications	Bangkok, Thailand; Luling, LA; Ruabon, United Kingdom; St. Louis, MO	Acetic Anhydride; Caustic Soda; Para-Nitrophenol; Phenol
Personal Products	Water treatment chemicals	Swimming pool disinfectants; industrial bleaches; dishwashing compounds	Luling, LA; Sauget, IL	Chlorine; Urea
Construction & Home Furnishings	Maleic anhydride	Shower stalls; artificial marble; mobile homes	LaSalle, Quebec, Canada; Newport, United Kingdom; Pensacola, FL	Benzene; Butane
Agriculture	Monochlorobenzene; Nitrochlorobenzene derivatives	Pesticides; animal feed preservatives	Anniston, AL; Sauget, IL	Benzene; Caustic Soda; Chlorine
Chemicals & Other	Nitrochlorobenzene derivatives	Dyes; pigments; rubber preservatives; gasoline additives	Anniston, AL; Sauget, IL	Benzene; Caustic Soda; Chlorine
	Colloidal silica	Foundry binders	Newport, United Kingdom; Ruabon, United Kingdom	Sodium Silicate
	Diphenyl oxide; Polyphenyls	Heat transfer fluids	Alvin, TX; Anniston, AL; Newport, United Kingdom	Benzene; Phenol

FISHER CONTROLS

Major End-Use Markets	Major Products	Major End-Use Products & Applications	Major Plants	Major Raw Materials & Components
Capital Equipment	Control valves and accessories	Control of industrial processes	Cernay, France; Marshalltown, IA; Medway, United Kingdom; North Stonington, CT; Sakura, Japan; Sherman, TX; Toluca, Mexico; Wetherill Park, Australia; Woodstock, Ontario, Canada	Bar stock; elastomers; metal castings; plastic components; stampings
	Process instrumentation	Process control/optimization and integration with business systems	Austin, TX; Cambridge, Ontario, Canada; Leicester, United Kingdom; Vichy, France	Cabinets; computers; electronic components; microprocessors
	Measurement instrumentation	Sense, measure, transmit data on temperature, pressure, level and flow	Austin, TX; Marshalltown, IA; McKinney, TX; San Jose, CA	Electronic components; metal castings; stampings
	Regulators	Control of liquids and gases	Marshalltown, IA; McKinney, TX	Elastomers; metal castings
	Engineering and installation services	Engineering and installation of electrical and instrumentation systems	Solingen, West Germany	Not applicable
	<i>Prism</i> ® separators; PSA systems; dryers; inert gas generators; filters	Gas separation systems	Glen Burnie, MD; Kristiansand S., Norway; Malvern, PA; St. Louis, MO	Carbon Molecular Sieve; Polysulfone

NUTRASWEET

Food	<i>NutraSweet</i> ® brand of aspartame	Low-calorie sweetener available primarily in beverages, dessert products and tabletop sweeteners	Augusta, GA; Harbor Beach, MI; University Park, IL	Aspartic Acid; L-Phenylalanine
	<i>Equal</i> ® brand of tabletop sweetener	Low-calorie tabletop sweetener		Aspartame

PHARMACEUTICALS

Pharmaceuticals	<i>Flagyl</i> ®/ <i>Flagyl IV</i> ® (Metronidazole/Metronidazole HCl)	Anti-infectives	Caguas, Puerto Rico	2-Ethylimidazole
	<i>Theo-24</i> ® (Theophylline Anhydrous)	Bronchodilators	Caguas, Puerto Rico	Theophylline
	<i>Aldactone</i> ®/ <i>Aldactazide</i> ® (Spironolactone/Hydrochlorothiazide); <i>Calan</i> ® formulations (Verapamil HCl)	Cardiovascular	Augusta, GA; Caguas, Puerto Rico; Evreux, France; Morpeth, United Kingdom	Androstenedione/Hydrochlorothiazide; Catechol
	Oral contraceptives	Fertility control	Caguas, Puerto Rico; Morpeth, United Kingdom	Androstenedienedione; Delta 4 (19-Norandrostenedione)
	<i>Cytotec</i> ® (Misoprostol)	Gastrointestinal	Coapa, Mexico; Morpeth, United Kingdom	Misoprostol
	<i>Canderel</i> ®/ <i>Equal</i> ® brand of tabletop sweetener	Consumer	Morpeth, United Kingdom	Aspartame

Sale of Products

Monsanto's products are sold directly to customers in various industries, to wholesalers and other distributors and jobbers, to retailers and to the ultimate consumer, principally by its own sales force, or, in some cases, through sales agents. With respect to pharmaceuticals, such sales force concentrates on detailing to physicians. Fisher Controls utilizes independent sales representatives, direct sales and some distributors. As indicated on page 42 of the 1988 Annual Report, Monsanto's net income is historically higher during the first half of the year, attributable primarily to a concentration of the generally more profitable Crop Chemicals sales in the first half of the year. Neither Monsanto's marketing and distribution practices nor the seasonality of the Crop Chemicals segment results in unusual working capital requirements on a consolidated basis. In general, Monsanto does not manufacture its products against a backlog of firm orders; production is geared primarily to the level of incoming orders and to projections of future demand. Monsanto generally is not dependent upon one or a group of customers. The NutraSweet segment, however, makes a majority of its sales to two companies pursuant to multi-year supply contracts for use in carbonated soft drinks. Monsanto has no material contracts with the government of the United States or any state, local or foreign government.

Raw Materials, Components and Energy Resources

Monsanto is both a producer and significant purchaser of a wide spectrum of its basic and intermediate raw material requirements. Major requirements for key raw materials, fuels and components are typically purchased pursuant to long-term contracts. With the exception of certain products that its Chemicals segment buys from its former Texas City, Texas and Seal Sands, United Kingdom plants, Monsanto is not dependent on any one supplier for a material amount of its raw materials, components or fuel requirements, but certain important raw materials are obtained from a few major suppliers. In general, where Monsanto has limited sources of raw materials, it has developed contingency plans to minimize the effect of any interruption or reduction in supply. Information with respect to specific raw materials and components is set forth in the table above under "Industry Segments; Principal Products."

While temporary shortages of raw materials, components and fuels may occasionally occur, these items are sufficiently available to cover current and projected requirements. However, their continuing availability and price are subject to unscheduled plant interruptions during this current period of high demand, domestic and world market and political conditions, as well as to the direct or indirect effect of U.S. government regulations. The impact of any future raw material, component and energy shortages on Monsanto's business as a whole or in specific world areas cannot be accurately predicted. Operations and products may, at times, be adversely affected by legislation, shortages or international or domestic events.

Patents, Trademarks, Licenses, Franchises and Concessions

Monsanto owns a large number of patents which relate to a wide variety of products and processes, has pending a substantial number of patent applications, and is licensed under a small number of patents. Monsanto's patents in the aggregate are of material importance in the operation of its business, particularly in the Crop Chemicals field and with respect to *NutraSweet*® brand of sweetener. Proprietary products such as *Roundup*® herbicide and *NutraSweet* brand of sweetener, or their use, are covered by patents in many countries. The Crop Chemicals patents have expiration dates extending through the year 2000. The United States patents covering *Roundup* herbicide and its use expire in 1991 and 2000; in many foreign countries, *Roundup* herbicide and its use will be protected by patents until 1991. The remaining United States patent covering *Lasso*® herbicide and its use expired in 1987. In the United States, the *NutraSweet* patents covering sweetening compositions containing aspartame and combinations of aspartame and saccharin expire in 1992 and 1996, respectively. *NutraSweet* is currently manufactured under patented processes licensed from a third party for the duration of the applicable patents. *Calan*® SR, an anti-hypertensive pharmaceutical, was licensed to Searle by a third party, which retained co-marketing rights. The product no longer has patent protection but is currently marketed (together with the licensor's product) on an exclusive basis as a result of non-patent market exclusivity.

conferred by the Waxman-Hatch amendments to the U.S. Food, Drug and Cosmetics Act. This exclusivity will terminate in December 1989.

The trademarks "NutraSweet®" and "Equal®" and the NutraSweet symbol are protected by registration in the U.S. and, with respect to the NutraSweet marks, generally in other countries where the product is marketed.

Lasso® and Roundup® herbicides, Calan® SR anti-hypertensive pharmaceutical and NutraSweet® brand of sweetener are each substantial contributors to earnings.

Monsanto holds (directly or by assignment) numerous phosphate leases, which were issued on behalf of or granted by the United States, political subdivisions of various states, or private parties. None of these leases taken individually is deemed by Monsanto to be material, although Monsanto's phosphate leases in the aggregate are of material importance to the Chemicals segment of its business. Monsanto's phosphate leases have varying terms, with leases obtained from the United States being of indefinite duration subject to the modification of lease terms at twenty-year intervals.

Competition

Monsanto encounters substantial competition in each of its industry segments. This competition, from other manufacturers of the same products and from manufacturers of different products designed for the same uses, is expected to continue in both United States and ex-U.S. markets. Depending on the product involved, various types of competition are encountered, including price, delivery, service, performance, product innovation, product recognition and quality.

The number of Monsanto's principal competitors varies from product to product. It is not practical to identify or discuss Monsanto's competitors because of the large variety of Monsanto's products, the markets served and the worldwide business interests of Monsanto. Overall, however, Monsanto regards its principal product groups to be competitive with many other products of other producers and believes that it is an important producer of many of such product groups.

Research and Development

Research and development constitute an important part of Monsanto's activities. See "Operating Unit Segment Data" on page 25 of the 1988 Annual Report, incorporated herein by reference.

Monsanto's technological efforts can be classified into three primary areas: *regenerative*—work that seeks to improve Monsanto's existing technology; *expansion*—work that extends Monsanto's participation in its present or related markets, either through the development of new products and processes or through the development of additional uses for present products; and *venture*—work that has as its object moving Monsanto into new fields or into a major departure from its present fields.

Monsanto is developing a number of products that generally are not yet profitable or, if profitable, are only marginally so. Some of these products are a part of Monsanto's venture program, and some are in pilot or initial commercial production.

In addition to conducting original research, Searle is engaged in a worldwide program of securing licenses for the development and sale of new pharmaceutical products. Similarly, the Company is engaged in a worldwide program of securing licenses for the development and sale of new agricultural products.

In 1988, NutraSweet announced its development of *Simplese*™ all-natural fat substitute and filed a petition with the U.S. Food and Drug Administration ("FDA") to affirm GRAS (Generally Recognized As Safe) status of products made with *Simplese* all-natural fat substitute. In the second half of 1988, Searle's product *Cytotec*® (misoprostol), which had previously been approved in forty-two countries for the treatment of ulcers, was approved in the United States for the prevention of gastric ulcers induced by nonsteroidal anti-inflammatory drugs and in the United Kingdom for ulcer healing and prevention.

Life sciences research, including biotechnology, continues to represent an important research direction within Monsanto. This research aims at the discovery of novel products for agriculture, animal and human nutrition and human health care. Monsanto is awaiting regulatory approval in the United

States of its first product to result from this research, bovine somatotropin (BST). BST is a naturally occurring protein produced through biotechnology that enhances the efficiency of milk production in dairy cows.

Expenses relating to basic and applied biotechnological research aimed at developing new biotechnology-based product opportunities are included in "Biotechnology Product Discovery" on page 30 of the 1988 Annual Report. Expenses of current biotechnology product development efforts directly related to operating unit segment activities are included as expenses in those segments.

Environmental Matters

Monsanto is subject to various laws and governmental regulations concerning employee health, product safety and environmental matters. It can be anticipated that increasingly stringent requirements will be imposed upon Monsanto and the chemical industry. Examples of federal environmental legislation administered by the Environmental Protection Agency ("EPA") are the Toxic Substances Control Act; the Federal Insecticide, Fungicide and Rodenticide Act; the Resource Conservation and Recovery Act; the Clean Air Act; the Clean Water Act; the Safe Drinking Water Act; the Comprehensive Environmental Response, Compensation and Liability Act (commonly known as "Superfund"); and the Superfund Amendments and Reauthorization Act (commonly known as "SARA"). Monsanto is also subject to regulations of the Occupational Safety and Health Administration ("OSHA") concerning employee safety and health matters. Under these and other statutes, the EPA, OSHA and other federal agencies have the authority to promulgate regulations which result in costly and time-consuming testing of chemicals and substantial expenditures for pollution control, reduction of chemical exposure, waste treatment and plant modification and which might result in discontinuance of certain products and operations. Monsanto is negotiating with various government agencies concerning Superfund clean-up sites. In addition to these federal activities, various states have been delegated certain authority under the aforementioned federal statutes. These delegations of authority generally involve permit issuance and compliance with the statutes. Many states have adopted or are in the process of adopting environmental, product safety and health laws and regulations, some of which may be more burdensome than similar federal requirements. The state environmental legislation administered by state agencies includes laws regulating air, surface and ground water, occupational safety, solid waste and hazardous substances cleanup. Monsanto's international business is also subject to regulation of its manufacturing facilities and/or products in other countries.

As part of its long-term environmental protection program, in 1988 Monsanto spent approximately \$36 million on capital projects and approximately \$207 million for operation and maintenance costs. Monsanto estimates that during 1989 and 1990 approximately \$65-75 million per year will be spent on additional capital projects for environmental protection. In 1988, Monsanto announced its goal to reduce air emissions reported under Title III of SARA by ninety percent by 1992. Achieving this target will require the development and installation of new technology. The cost to accomplish this target is not expected to affect operating results materially; it is anticipated that this program will be implemented within existing capital budgets. In addition, the Company spent \$19 million in 1988 to clean up old waste disposal sites and expects to continue to make similar or greater expenditures in the next several years for such purposes.

Employee Relations

As of December 31, 1988, Monsanto had approximately 46,000 employees worldwide. Satisfactory relations have prevailed between Monsanto and its employees.

International Operations

Monsanto and affiliated companies are engaged in manufacturing, sales or research and development in Europe, Canada, Latin America, Australia, New Zealand, Asia and Africa. A large number of products are manufactured abroad. Monsanto's ex-U.S. operations are subject to a number of potential risks and limitations, such as fluctuations in currency values, exchange control regulations, wage and price controls, approvals of therapeutic claims and pricing for pharmaceutical products,

government regulation of food ingredients, animal products and biotechnology, employment regulations, trade restrictions, governmental instability (including expropriation or confiscation of assets) and other potentially detrimental domestic and foreign governmental practices or policies affecting United States companies doing business abroad. See "Geographic Data" on page 30 and "Segment Information" on pages 41 and 42 of the 1988 Annual Report, incorporated herein by reference.

In 1988, Monsanto sold certain of its businesses related to products produced in Australia. However, Monsanto retains its Australian agricultural and resale businesses.

Legal Proceedings

Because of the size and nature of its business, Monsanto is a party to numerous legal proceedings. Most of these proceedings have arisen in the ordinary course of business and involve claims for money damages. While the results of litigation cannot be predicted with certainty, Monsanto does not believe these matters or their ultimate disposition will have a material adverse effect on Monsanto's financial position.

On June 11, 1979, the Company was joined as a defendant in the first of a number of lawsuits arising out of a tank car derailment which occurred on January 10, 1979, in Sturgeon, Missouri. Currently pending against the Company are the following cases: (a) A consolidated action by one railroad worker and 22 dependents of railroad workers filed in Missouri state court (City of St. Louis). This case had previously been filed in Illinois state court (Madison County), but was voluntarily dismissed and refiled in Missouri. Plaintiffs in this case seek a total of \$79.5 million in actual damages. The Company is the sole remaining defendant in this action. Claims made by plaintiffs against the railroad, the manufacturer of the tank car and the manufacturer of an allegedly defective coupling device have been settled. (b) A total of 23 actions by 70 plaintiffs, most of whom are residents and property owners in Sturgeon, filed in Illinois state court (St. Clair County). Trial of 20 of these consolidated actions involving 65 plaintiffs concluded on October 22, 1987, with a jury determination that the involved product was not unreasonably dangerous, that no noneconomic loss had occurred, but that nominal damages of one dollar should be awarded to each of 63 plaintiffs, that \$14,500 in economic loss should be awarded to each of two additional plaintiffs with property damage claims and that \$16.25 million in punitive damages should be awarded. The Company was the sole remaining defendant in the trial. The Company believes that the verdicts for plaintiffs were unsupported, contrary to the evidence and the law of Illinois and should be reversed. A notice of appeal was filed on behalf of the Company on July 7, 1988, with the Illinois Court of Appeals for the Fifth District. The Company's initial brief in the appeal was filed January 31, 1989. The Company will vigorously pursue its appellate remedies in this matter and has requested the appellate court to enter judgment notwithstanding the verdict on Count II, the portion of the complaint under which the damages were awarded; alternatively, a new trial on Count II, and/or a massive reduction in damages has been requested by the Company. (c) A total of 59 cases brought on behalf of a total of 132 plaintiffs from the general Sturgeon area filed in Missouri state courts (58 in the City of St. Louis and one in Boone County). Plaintiffs seek damages aggregating \$574.55 million in actual damages and \$310 million in punitive damages. The Company is the sole remaining defendant in the actions pending in the City of St. Louis. Claims made by plaintiffs against the railroad, the manufacturer of the tank car and the manufacturer of an allegedly defective coupling device have been settled. In all of these cases, the Company has filed or will file a third-party complaint against the company that conducted the cleanup, seeking indemnity or contribution for any judgment that may be rendered against the Company. The allegations in these cases vary, but include allegations that the Company negligently and willfully and wantonly: (i) failed to test the chemicals or remove contaminants; (ii) failed to warn plaintiffs of the alleged hazards thereof; (iii) failed to properly containerize the chemicals; (iv) supplied a defective and unreasonably dangerous product in an inadequate tank car; and (v) engaged in an ultrahazardous activity. The Company will continue to vigorously defend these actions.

In 1974, Searle, a subsidiary of the Company acquired in 1985, introduced an intrauterine contraceptive product under the name *Cu-7*[®]. This product, commonly referred to as an intrauterine device ("IUD"), is considered a drug for purposes of review by the FDA and, following extensive testing by Searle and review by the FDA, was cleared for sale as a prescription drug. Since introduction of the

Cu-7 to the market in 1974, Searle has been named a defendant in a number of product liability lawsuits either as the sole defendant or as a co-defendant with other IUD manufacturers or physicians. Currently, there are approximately 415 cases pending in various state and federal courts, the first of which was filed on December 26, 1974. The lawsuits typically allege that the *Cu-7* caused personal injury resulting from pelvic inflammatory disease, perforation, pregnancy, ectopic pregnancy or septic abortion. The lawsuits seek damages in varying amounts, and in some jurisdictions no specific amount or only the minimum jurisdictional amount is specified. Commonly, these suits claim \$1 million in compensatory and \$1 million in punitive damages, with most suits seeking at least \$50,000 in damages. Searle believes that it has meritorious defenses to these lawsuits and that the *Cu-7* is safe and effective when used in accordance with the prescribing information approved by the FDA. On September 9, 1988, a federal district court jury in St. Paul, Minnesota awarded \$1.75 million in compensatory damages (later reduced to \$1.15 million) and \$7 million in punitive damages to a plaintiff claiming that the *Cu-7* caused pelvic inflammatory disease and resulted in sterility. Searle filed motions for judgment notwithstanding the verdict and for a new trial on numerous grounds, including insufficiency of the evidence, improprieties in jury deliberations, errors by the magistrate who received the jury verdict and evidentiary errors. On February 16, 1989, the federal district court substantially denied these motions. Searle will appeal and believes that it has substantial bases for an appeal. On January 31, 1986, Searle voluntarily discontinued the sale of the *Cu-7* in the United States, citing the cost of defending such product litigation. The *Cu-7* continues to be approved by the FDA. Searle is vigorously defending each of these lawsuits. On September 9, 1988, in a separate suit in the federal district court in St. Paul, Minnesota, there was a procedural ruling that the court had jurisdiction over the Company under Minnesota law in a case alleging that it, in concert with Searle, misrepresented the safety of the *Cu-7*. The Company disagrees with this ruling and will vigorously defend its position that there is no merit to the allegations against it.

The Company is the sole defendant in an action filed in the U.S. District Court for the Southern District of Texas (Galveston Division) on November 2, 1982, by the survivors of a deceased Monsanto employee, W. J. Skeen. Plaintiffs allege that Mr. Skeen's death was caused by his exposure to benzene at the Alvin, Texas plant. On December 12, 1986, a jury in this matter returned a verdict in plaintiffs' favor of \$7,750,000 compensatory and \$100 million punitive damages. Under Texas law, plaintiffs were required to prove gross negligence and may recover only the punitive damages portion of the award. On June 25, 1987, the District Court set aside the jury's verdict and granted the Company's motion for a new trial. On December 19, 1988, the Court ordered a bifurcation of the issues in the case, with the issue of whether benzene can cause the type of leukemia from which Mr. Skeen suffered to be tried first. On February 15, 1989, a jury returned a decision in plaintiffs' favor on the causation issue after a four-week trial. On February 18, 1989, the Company reached an agreement with plaintiffs to settle this matter.

Other

As part of its program to manage assets effectively, Monsanto evaluates risk retention and insurance levels for liability, property damage and other potential areas of risk. Monsanto devotes significant effort to maintaining and improving safety and internal control programs, which minimize certain risks. Based on the cost and availability of insurance and the likelihood of a loss occurring, management decides the amount of insurance coverage to purchase from unaffiliated companies and the appropriate amount of risk to retain. Because insurance generally, and liability insurance (including products liability insurance) in particular, is now less available, more restrictive and higher in cost than several years ago, Monsanto is retaining a greater portion of its entire risk. This risk includes being insured in the liability area on a "claims made" policy basis. Management believes that the current levels of risk retention are appropriate and are generally consistent with those of other companies in the various industries in which Monsanto operates.

Item 2. PROPERTIES.

The General Offices of the Company are located on a 285-acre tract of land in St. Louis County, Missouri. The Company also owns a 210-acre tract in St. Louis County on which additional research

facilities are located. Monsanto also has research laboratories and technical centers throughout the world. Information with respect to Monsanto's principal plants worldwide and the industry segments which use such plants as of January 1, 1989 is set forth under "Business—Industry Segments; Principal Products" in Item 1 of this Report, which is incorporated herein by reference.

The plants listed under "Business—Industry Segments; Principal Products" in Item 1 of this Report are suitable and adequate for their use. Utilization of these facilities may vary with seasonal, economic and other business conditions, but none of the plants is substantially idle. The facilities generally have sufficient capacity for existing needs and expected near-term growth. All of these plants are owned in fee, except the following which are leased in whole or in part: San Jose, CA; University Park, IL; Wingate plant in Akron, OH; Wadsworth, OH; Antwerp, Belgium; Cambridge, Ontario, Canada; Kristiansand S., Norway; Leicester, Medway and Swindon in the United Kingdom; and Wetherill Park, Australia. The Company has granted leases, with options to purchase, on approximately 366 acres of the 3,000 acres at the Alvin, TX plant site, and 16 acres of the 256 acres at the Indian Orchard, MA plant site. In limited instances, Monsanto has granted leases on portions of other plant sites not required for current operations.

Item 3. LEGAL PROCEEDINGS.

For information concerning certain legal proceedings involving Monsanto, see "Business—Legal Proceedings" contained in Item 1 of this Report, which is incorporated herein by reference.

Item 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS.

No matters were submitted to the security holders during the fourth quarter of 1988.

EXECUTIVE OFFICERS OF THE REGISTRANT.

Information regarding executive officers is contained in Item 10 of Part III of this Report (General Instruction G).

PART II

Item 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS.

The tabular and narrative information regarding the market for the Company's common equity and related stockholder matters appearing under "Quarterly Data" on page 42 and "Review of Cash Flow" on page 35 of the 1988 Annual Report is incorporated herein by reference.

Item 6. SELECTED FINANCIAL DATA.

The tabular information under "Financial Summary—Operating Results, Earnings per Share and Year-end Financial Position" and the amounts of Dividends per Share, all appearing on page 43 of the 1988 Annual Report, are incorporated herein by reference. See notes to financial statements on page 37 of the 1988 Annual Report (incorporated herein by reference) for discussion of the restructuring program in 1985. The Company acquired Searle in August 1985 for \$2,754 million.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATION.

The tabular and narrative information appearing under "Review of Consolidated Results of Operations" on pages 23 and 24, "Operating Unit Segment Data" on pages 25 through 30, "Review of Liquidity and Capital Resources" on page 33, and "Review of Cash Flow" on page 35 of the 1988 Annual Report is incorporated herein by reference.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

The consolidated financial statements of Monsanto appearing on pages 22, 32, 34 and 36 through 42; the Independent Auditors' Opinion appearing on page 21; and the tabular and narrative information appearing under "Quarterly Data" on page 42 of the 1988 Annual Report are incorporated herein by reference.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

PART III

Item 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT.

Information regarding directors appearing under "Election of Directors" on pages 2 through 6 of the Monsanto Company Notice of Annual Meeting and Proxy Statement (the "1989 Proxy Statement") dated March 17, 1989, is incorporated herein by reference. The following information with respect to the Executive Officers of the Company on March 1, 1989, is included pursuant to Instruction 3 of Item 401(b) of Regulation S-K:

Name—Age	Present Position with Registrant	Year First Became an Executive Officer	Other Business Experience since January 1, 1984 (References are to Positions within Monsanto Unless Otherwise Noted)
Robert L. Berra, 64	Senior Vice President, Administration; Advisory Director—Monsanto Company	1974	Present position, 1980.
Earl N. Brasfield, 54	Vice President—Monsanto Company; Group Vice President—Monsanto Chemical Company	1984	General Manager, Plastics—Monsanto Polymer Products Co., 1984; Vice President and Managing Director—Monsanto Fibers & Intermediates Co., 1984; and present position, 1986.
Leonard A. Cohn, 59	Vice President, Management Information Systems—Monsanto Company	1979	Vice President, Energy & Materials Management, 1979; Vice President, Information Systems & Materials Management, 1984; and present position, 1986.
Harold J. Corbett, 61	Senior Vice President, Environment, Safety & Health; Advisory Director—Monsanto Company	1980	Group Vice President and Managing Director—Monsanto Polymer Products Co., 1983; Senior Vice President, Environmental Policy Staff, 1984; Senior Vice President, Environment, Facilities & Materials, 1984; Advisory Director, 1985; and present position, 1986.
Richard W. Duesenberg, 58	Senior Vice President, Secretary and General Counsel—Monsanto Company	1977	Present position, 1982.
A. Nicholas Filippello, 46	Vice President, Financial Communications and Chief Economist—Monsanto Company	1988	Director, Financial Relations and Chief Economist, 1981; Director of Financial Communications and Chief Economist, 1986; and present position, 1988.
Robert E. Flynn, 55	Chairman, Chief Executive Officer and President, Fisher Controls International, Inc. (a subsidiary of the Company)	1987	President and Chief Executive Officer, Fisher Controls International, Inc. (a subsidiary of the Company), 1982; Chairman and Chief Executive Officer, Fisher Controls International, Inc., 1985; and present position, 1988.
Sheldon G. Gilgore, 57	Chairman, President and Chief Executive Officer, G. D. Searle & Co. (a subsidiary of the Company)	1987	President, Pfizer Pharmaceuticals, Vice President, Pfizer, Inc., 1971; President and Chief Executive Officer, G. D. Searle & Co. (a subsidiary of the Company), 1986; and present position, 1986.
Earle H. Harbison, Jr., 60	Director; President and Chief Operating Officer; Member of Executive and Pension and Savings Funds Committees—Monsanto Company	1977	Executive Vice President and Advisory Director, 1981; Executive Vice President—Monsanto Company, Chairman, G. D. Searle & Co. (a subsidiary of the Company), Chairman, The NutraSweet Company (a subsidiary of the Company), 1985; Vice Chairman and Director—Monsanto Company, Chairman, G. D. Searle & Co., Chairman, The NutraSweet Company, 1986; and present position, 1986.

Name—Age	Present Position with Registrant	Year First Became an Executive Officer	Other Business Experience since January 1, 1984 (References are to Positions within Monsanto Unless Otherwise Noted)
B. Clare Harris, 52	Vice President and Controller—Monsanto Company	1985	Assistant Treasurer, 1982; Treasurer, 1985; Vice President and Treasurer, 1986; and present position, 1987.
S. Allen Heininger, 63	Vice President, Resource Planning—Monsanto Company	1977	Vice President, Corporate Plans, 1980; and present position, 1986.
Juanita H. Hinshaw, 44	Vice President and Treasurer—Monsanto Company	1987	Manager, International Banking & Foreign Exchange, R. J. Reynolds Industries, Inc., 1980; Assistant Treasurer—Monsanto Company, 1984; Treasurer, 1987; and present position, 1988.
Martin J. Kallen, 52	Vice President and Managing Director, Europe/Africa—Monsanto Company; Chairman, Monsanto Europe, S.A. (a subsidiary of the Company)	1982	Present position, 1982.
Thomas H. Lafferre, 54	Vice President—Monsanto Company; Vice President, Operations—Monsanto Chemical Company	1983	Vice President, Engineering, 1984; and present position, 1986.
Richard J. Mahoney, 55	Director; Chairman and Chief Executive Officer; Member of Executive and Finance Committees—Monsanto Company	1975	President and Chief Executive Officer, 1983; and present position, 1986.
Philip Needleman, 50	Vice President, Corporate Research and Development—Monsanto Company	1989	Head of Department of Pharmacology, Washington University School of Medicine, 1976; and present position, 1989.
Richard A. Overton, 46	Vice President, Tax—Monsanto Company	1986	Director, Corporate Tax Department and Assistant Treasurer, 1983; and present position, 1986.
Robert G. Potter, 49	Group Vice President and Advisory Director—Monsanto Company; President—Monsanto Chemical Company	1981	Group Vice President and Managing Director—Monsanto Industrial Chemicals Co., 1983; Group Vice President and Managing Director—Monsanto Polymer Products Co., 1984; Group Vice President—Monsanto Company, Senior Vice President—Monsanto Chemical Company, 1986; and present position, 1986.

Name—Age	Present Position with Registrant	Year First Became an Executive Officer	Other Business Experience since January 1, 1984 (References are to Positions within Monsanto Unless Otherwise Noted)
Nicholas L. Reding, 54	Executive Vice President and Advisory Director—Monsanto Company; President—Monsanto Agricultural Company	1976	Executive Vice President and Advisory Director, 1981; and present position, 1986.
Howard A. Schneiderman, 62	Senior Vice President, Research & Development; Advisory Director—Monsanto Company	1979	Present position, 1979.
James H. Senger, 62	Vice President, Environmental Policy Staff—Monsanto Company	1984	Director, Environmental Health, Department of Medicine & Environmental Health, 1981; and present position, 1984.
Robert B. Shapiro, 50	Chairman and Chief Executive Officer, The NutraSweet Company (a subsidiary of the Company)	1987	President, NutraSweet Group, G. D. Searle & Co., 1982; President and Chief Executive Officer, The NutraSweet Company (a subsidiary of the Company), 1986; Chairman, President and Chief Executive Officer, The NutraSweet Company, 1986; and present position, 1986.
Lawrence B. Skatoff, 49	Vice President, Finance—Monsanto Company	1982	Vice President and Treasurer, 1982; Vice President and Controller, 1985; and present position, 1987.
David L. Sliney, 52	Vice President—Monsanto Company; Vice President, Marketing—Monsanto Chemical Company	1984	General Manager, Sales—Monsanto Polymer Products Co., 1983; Vice President, Corporate Marketing, 1984; and present position, 1986.
Francis A. Stroble, 58	Senior Vice President and Chief Financial Officer; Advisory Director—Monsanto Company	1975	Present position, 1982.
Virginia V. Weldon, 53	Vice President, Scientific Affairs—Monsanto Company	1989	Professor of Pediatrics, Washington University School of Medicine, 1979-89; Vice President, Medical Center, Washington University School of Medicine, 1981-89; Deputy Vice Chancellor for Medical Affairs, Washington University School of Medicine, 1983-89; and present position, 1989.

The above-listed individuals are elected to the offices set opposite their names to hold office until their successors are duly elected and have qualified, or until their earlier death, resignation or removal.

Item 11. EXECUTIVE COMPENSATION.

Information appearing under "Executive Compensation" on pages 11 through 23 of the 1989 Proxy Statement is incorporated herein by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT.

Information appearing under "Stock Ownership" on pages 7 and 8 of the 1989 Proxy Statement is incorporated herein by reference.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS.

No reportable transactions. (See page 8 of the 1989 Proxy Statement.)

PART IV

Item 14. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K.

(a) Documents filed as part of this Report:

1. The financial statements set forth at pages 22, 32, 34, and 36 through 42 of the 1988 Annual Report (See Exhibit 13 under Paragraph (a)3 of this Item 14)

2. Financial Statement Schedules

The following supplemental schedules for the years ended December 31, 1988, 1987 and 1986:

V—Property, Plant and Equipment

VI—Accumulated Depreciation, Depletion, and Amortization of Property, Plant and Equipment

VII—Guarantees of Securities of Other Issuers (December 31, 1988, only)

VIII—Valuation and Qualifying Accounts

IX—Short-Term Borrowings

X—Supplementary Income Statement Information

All other supplemental schedules are omitted because of the absence of the conditions under which they are required.

3. Exhibits—See the Exhibit Index at page 28 of this Report. The following exhibits listed in the Exhibit Index are filed with this Report:

13 The Company's 1988 Annual Report to shareowners

19(i) 1. Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of April 29, 1985

2. Letter Agreement dated February 29, 1988, amending a Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of April 22, 1983

3. Agreement between the Company and Dr. Howard A. Schneiderman entered into as of May 16, 1988

19(ii) 1. Monsanto Management Incentive Plan of 1974, as amended in 1978, 1979, 1981, 1982, 1983, 1984 and 1988

2. Monsanto Management Incentive Plan of 1984, as amended in 1987 and 1988

3. Monsanto Management Incentive Plan of 1988/I, as amended in 1988

4. Letter Agreement dated April 22, 1983, amending a Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of July 28, 1981

5. Letter Agreement dated September 8, 1983, amending a Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of July 28, 1981, as amended by a Letter Agreement entered into as of April 22, 1983

- 22 Subsidiaries of the registrant (See page 32)
- 24(ii) 1. Consent of Independent Auditors (See page 33)
 - 2. Consent of Company Counsel (See page 33)
- 25 Powers of attorney submitted by Marguerite R. Barnett, Joan T. Bok, Donald C. Carroll, C. R. Dahl, Richard I. Fricke, John W. Hanley, Earle H. Harbison, Jr., B. C. Harris, Robert M. Heyssel, Howard M. Love, Richard J. Mahoney, Buck Mickel, John S. Reed, William D. Ruckelshaus, John B. Slaughter, Francis A. Stroble and Stansfield Turner
- 28 Summarized Financial Information—The NutraSweet Company (See page 34)

(b) Reports on Form 8-K:

No reports on Form 8-K were filed by the Company during the quarter ended December 31, 1988.

OPINION OF INDEPENDENT AUDITORS

Monsanto Company:

We have audited the accompanying statement of consolidated financial position of Monsanto Company and Subsidiaries as of December 31, 1988 and 1987 and the related statements of consolidated income, shareowners' equity and cash flow for each of the three years in the period ended December 31, 1988 and have issued our opinion thereon dated February 24, 1989; such financial statements and opinion are included in your 1988 Annual Report to shareowners and are incorporated herein by reference. Our audits also comprehended the supplemental schedules of Monsanto Company and Subsidiaries, listed in Item 14(a). In our opinion, such supplemental schedules, when considered in relation to the basic consolidated financial statements, present fairly in all material respects the information shown therein.

DELOITTE HASKINS & SELLS

Saint Louis, Missouri
February 24, 1989

CONSENT OF COMPANY COUNSEL

I hereby consent to the reference to Company counsel in the "Commitments and Contingencies" note to the financial statements in the Company's 1988 Annual Report to shareowners and incorporated by reference herein.

RICHARD W. DUESENBERG
General Counsel
Monsanto Company

Saint Louis, Missouri
March 24, 1989

MONSANTO COMPANY AND SUBSIDIARIES

PROPERTY, PLANT AND EQUIPMENT
FOR THE YEARS ENDED DECEMBER 31, 1988, 1987 AND 1986

(Dollars in millions)

COLUMN A	COLUMN B	COLUMN C	COLUMN D	COLUMN E			COLUMN F
Classification	Balance at Beginning of Year	Additions at Cost	Retirements	Transfers Between Accounts	Foreign Currency Translation Adjustments	Other Changes	Balance at End of Year
Year Ended December 31, 1988:							
Land	\$ 112		\$ 1	\$ 4	\$ (1)	\$ (3) ^(B)	\$ 111
Buildings	1,097		11	70	(14)	(20) ^(B)	1,122
Machinery and equipment .	5,242		203	480	(49)	(82) ^(B)	5,388
Construction-in-progress	279	\$590 ^(A)		(554)	(7)	(3) ^(B)	305
Total	\$6,730	\$590	\$215	\$ —	\$(71)	\$(108)	\$6,926
Year Ended December 31, 1987:							
Land	\$ 102			\$ 2	\$ 8		\$ 112
Buildings	1,002		\$ 13	71	48	{ \$ (15) ^(B) 4 ^(C) }	1,097
Machinery and equipment .	4,964		271	423	160	{ (52) ^(B) 18 ^(C) }	5,242
Construction-in-progress	258	\$505 ^(A)		(496)	12		279
Total	\$6,326	\$505	\$284	\$ —	\$228	\$ (45)	\$6,730
Year Ended December 31, 1986:							
Land	\$ 101		\$ 4	\$ 8	\$ 4	{ \$ (8) ^(B) 1 ^(C) }	\$ 102
Buildings	961		50	66	24	{ (35) ^(B) 36 ^(C) }	1,002
Machinery and equipment .	5,494		466	480	68	{ (539) ^(B) (73) ^(C) }	4,964
Construction-in-progress	284	\$520 ^(A)		(554)	8		258
Total	\$6,840	\$520	\$520	\$ —	\$104	\$(618)	\$6,326

NOTES:

- (A) Property additions generally are initially charged to construction-in-progress and subsequently transferred to their appropriate asset classification when placed in service.
- (B) Principally property related to divested operations.
- (C) Transfers from (to) other accounts.
- (D) Cost is depreciated using the straight-line method over weighted average periods of 23 years for buildings and 12 years for machinery and equipment.

MONSANTO COMPANY AND SUBSIDIARIES

**ACCUMULATED DEPRECIATION, DEPLETION, AND AMORTIZATION
OF PROPERTY, PLANT AND EQUIPMENT
FOR THE YEARS ENDED DECEMBER 31, 1988, 1987 AND 1986**

(Dollars in millions)

COLUMN A	COLUMN B	COLUMN C	COLUMN D	COLUMN E		COLUMN F
Description	Balance at Beginning of Year	Additions Charged to Costs and Expenses	Retirements	Foreign Currency Translation Adjustments	Other Changes	Balance at End of Year
Year Ended December 31, 1988:						
Buildings	\$ 449	\$ 46	\$ 9	\$ (6)	\$ (7) ^(A)	\$ 473
Machinery and equipment	3,182	393	183	(33)	{ (52) ^(A) (19) ^(B) }	3,288
Government grants	23	(4) ^(C)	1	(1)	2 ^(D)	19
Total	<u>\$3,654</u>	<u>\$435</u>	<u>\$193</u>	<u>\$ (40)</u>	<u>\$ (76)</u>	<u>\$3,780</u>
Year Ended December 31, 1987:						
Buildings	\$ 401	\$ 46	\$ 7	\$ 15	\$ (6) ^(A)	\$ 449
Machinery and equipment	2,992	378	256	89	{ (36) ^(A) 15 ^(B) }	3,182
Government grants	20	(3) ^(C)	—	5	1 ^(D)	23
Total	<u>\$3,413</u>	<u>\$421</u>	<u>\$263</u>	<u>\$109</u>	<u>\$ (26)</u>	<u>\$3,654</u>
Year Ended December 31, 1986:						
Buildings	\$ 405	\$ 41	\$ 43	\$ 10	{ \$ (15) ^(A) 3 ^(B) }	\$ 401
Machinery and equipment	3,383	385	450	40	{ (463) ^(A) 7 ^(B) 90 ^(E) }	2,992
Government grants	18	(3) ^(C)	—	1	4 ^(D)	20
Total	<u>\$3,806</u>	<u>\$423</u>	<u>\$493</u>	<u>\$ 51</u>	<u>\$ (374)</u>	<u>\$3,413</u>

NOTES:^(A) Principally includes accumulated depreciation related to divested operations.^(B) Transfers from (to) other accounts.^(C) Amortization of government grants credited to income.^(D) Government grant additions.^(E) Includes the reserve for the 1986 Electronic Materials property write-down.

MONSANTO COMPANY AND SUBSIDIARIESGUARANTEES OF SECURITIES OF OTHER ISSUERS
AS OF DECEMBER 31, 1988

(Dollars in millions)

<u>COLUMN A</u>	<u>COLUMN B</u>	<u>COLUMN C</u>
<u>Name of Issuer of Securities</u> <u>Guaranteed by Person for Which Statement is Filed</u>	<u>Title of Issue of Each</u> <u>Class of Securities Guaranteed</u>	<u>Total Amount</u> <u>Guaranteed</u> <u>and</u> <u>Outstanding</u>
Village of Sauget, Illinois	Pollution Control Revenue Bonds (Serial Bonds)	\$ 4
Village of Sauget, Illinois	Pollution Control Revenue Bonds (Term Bonds)	25
Gulf Coast Waste Disposal	Pollution Control Revenue Bonds	1
Brazos Harbor Industrial Development Corporation	Marine Terminal Revenue Bonds	2
Chester County Industrial Development Authority	Industrial Development Revenue Bonds	1
Various Export Financings	Bank Loans	6
Rural Credit Financing (Brazil)	Bank Loans	3
Various Equity Affiliates	Bank Loans	19
Various Bond Holders	Industrial Revenue Bonds	<u>11</u>
		<u>\$72</u>

NOTES:

Columns D, E and G have been omitted as the answers thereto would have been "None."

In answer to Column F, all guaranteed securities are guaranteed as to principal and interest.

The annual aggregate amount of interest guaranteed is approximately \$4 million.

SCHEDULE VIII

MONSANTO COMPANY AND SUBSIDIARIES

VALUATION AND QUALIFYING ACCOUNTS
FOR THE YEARS ENDED DECEMBER 31, 1988, 1987 AND 1986
(Dollars in millions)

<u>COLUMN A</u>	<u>COLUMN B</u>	<u>COLUMN C</u>	<u>COLUMN D</u>	<u>COLUMN E</u>
<u>Description</u>	<u>Balance at Beginning of Year</u>	<u>Additions Charged to Costs and Expenses</u>	<u>Deductions</u>	<u>Balance at End of Year</u>
Year Ended December 31, 1988:				
Reserves deducted from related assets in the Statement of Consolidated Financial Position:				
Doubtful receivables and returns and allowances	\$ 38	\$ 26	\$36 ^(A)	\$ 28
Inventory and obsolescence losses	\$ 36	\$ 19	\$24	\$ 31
Amortization of intangible assets	\$566	\$236	\$ 4	\$798
Year Ended December 31, 1987:				
Reserves deducted from related assets in the Statement of Consolidated Financial Position:				
Doubtful receivables and returns and allowances	\$ 36	\$ 32	\$ 30 ^(A)	\$ 38
Inventory and obsolescence losses	\$ 32	\$ 13	\$ 9	\$ 36
Amortization of intangible assets	\$337	\$229		\$566
Year Ended December 31, 1986:				
Reserves deducted from related assets in the Statement of Consolidated Financial Position:				
Doubtful receivables and returns and allowances	\$ 42	\$ 31	\$ 37 ^(A)	\$ 36
Inventory and obsolescence losses	\$ 51	\$ 35	\$ 54	\$ 32
Amortization of intangible assets	\$110	\$227		\$337

NOTE:

^(A) Principally allowances granted.

MONSANTO COMPANY AND SUBSIDIARIES

SHORT-TERM BORROWINGS
FOR THE YEARS ENDED DECEMBER 31, 1988, 1987 AND 1986
(Dollars in millions)

<u>COLUMN A</u>	<u>COLUMN B</u>	<u>COLUMN C</u>	<u>COLUMN D</u>	<u>COLUMN E</u>	<u>COLUMN F</u>
Category of Aggregate Short-Term Borrowings	Balance at End of Year ^(A)	Weighted Average Interest Rate	Maximum Amount Outstanding During the Year	Average Amount Outstanding During the Year ^(C)	Weighted Average Interest Rate During the Year ^(C)
Year Ended December 31, 1988:					
Payable to banks	\$200	9%	\$260	\$214	12%
Commercial paper ^(B)	\$228	7%	\$328	\$197	7%
Year Ended December 31, 1987:					
Payable to banks	\$263	8%	\$263	\$227	9%
Commercial paper ^(B)	\$157	7%	\$212	\$108	7%
Year Ended December 31, 1986:					
Payable to banks	\$237	7%	\$237	\$199	8%
Commercial paper ^(B)	\$ 14	8%	\$404	\$173	9%

NOTES:

- ^(A) Included, under payable to banks, are \$79 million, \$127 million, and \$107 million in 1988-1986, respectively, related to short-term facilities of ex-U.S. subsidiaries. Interest on these loans is principally related to various ex-U.S. bank rates. The short-term facilities of ex-U.S. subsidiaries include \$27 million, \$16 million, and \$19 million in 1988-1986, respectively, of loans of subsidiaries in hyperinflationary countries.
- ^(B) Interest on these borrowings is generally at money market rates determined by competitive bidding. Interest may also be at, or at a margin above, the Citibank, N.A. base interest rate, or at a margin above the rates paid on either certificates of deposit or the London Interbank Offered Rate (LIBOR).
- ^(C) Based on the average month-end amounts outstanding for payable to banks and based on the average daily balance for commercial paper.

SCHEDULE X

MONSANTO COMPANY AND SUBSIDIARIES**SUPPLEMENTARY INCOME STATEMENT INFORMATION
FOR THE YEARS ENDED DECEMBER 31, 1988, 1987 AND 1986**
(Dollars in millions)

<u>COLUMN A</u>	<u>COLUMN B</u>
<u>Item</u>	<u>Charged to Costs and Expenses</u>
Year Ended December 31, 1988:	
Maintenance and repairs	\$387
Taxes, other than payroll and income taxes ^(A)	110
Advertising costs	272
Royalty costs	88
Year Ended December 31, 1987:	
Maintenance and repairs	\$367
Taxes, other than payroll and income taxes ^(A)	101
Advertising costs	230
Royalty costs	69
Year Ended December 31, 1986:	
Maintenance and repairs	\$363
Taxes, other than payroll and income taxes ^(A)	112
Advertising costs	198
Royalty costs	51

NOTES:

^(A) Includes real estate, personal property, franchise, excise and other taxes, none of which exceeds 1 percent of net sales.

^(B) Preoperating costs and similar deferrals were each less than 1 percent of net sales. Depreciation and amortization of intangible assets are included in the Statement of Consolidated Cash Flow.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

MONSANTO COMPANY

(Registrant)

By B. C. HARRIS
B. C. Harris
Vice President and Controller
(Principal Accounting Officer)

Date: March 24, 1989

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
* _____ (Richard J. Mahoney)	Chairman and Director (Principal Executive Officer)	March 24, 1989
* _____ (Earle H. Harbison, Jr.)	President and Director	March 24, 1989
* _____ (Francis A. Stroble)	Senior Vice President (Principal Financial Officer)	March 24, 1989
B. C. HARRIS _____ (B. C. Harris)	Vice President and Controller (Principal Accounting Officer)	March 24, 1989
* _____ (Marguerite R. Barnett)	Director	March 24, 1989
* _____ (Joan T. Bok)	Director	March 24, 1989
* _____ (Donald C. Carroll)	Director	March 24, 1989
* _____ (C. R. Dahl)	Director	March 24, 1989
* _____ (Richard I. Fricke)	Director	March 24, 1989
* _____ (John W. Hanley)	Director	March 24, 1989

<u>Signature</u>	<u>Title</u>	<u>Date</u>
* _____ (Robert M. Heyssel)	Director	March 24, 1989
* _____ (Howard M. Love)	Director	March 24, 1989
* _____ (Buck Mickel)	Director	March 24, 1989
* _____ (John S. Reed)	Director	March 24, 1989
_____ (William D. Ruckelshaus)	Director	March , 1989
_____ (John B. Slaughter)	Director	March , 1989
* _____ (Stansfield Turner)	Director	March 24, 1989

*Richard W. Duesenberg, by signing his name hereto, does sign this document on behalf of the above noted individuals, pursuant to powers of attorney duly executed by such individuals which have been filed as an Exhibit to this Report.

RICHARD W. DUESENBERG

Richard W. Duesenberg
Attorney-in-Fact

EXHIBIT INDEX

These Exhibits are numbered in accordance with the Exhibit Table of Item 601 of Regulation S-K:

<u>Exhibit No.</u>	<u>Description</u>
3	<ol style="list-style-type: none"> 1. Restated Certificate of Incorporation of the Company effective as of April 27, 1987 (incorporated herein by reference to Exhibit 19(ii)2 of the Company's Form 10-Q for the quarter ended June 30, 1987) 2. By-laws of the Company (incorporated herein by reference to Exhibit 19(ii) of the Company's Form 10-Q for the quarter ended September 30, 1987)
4(i)	Form of Rights Agreement, dated as of January 24, 1986 between the Company and The First National Bank of Boston (incorporated herein by reference to Form 8-A filed on January 31, 1986)
4(iii)	Registrant agrees to furnish to the Securities and Exchange Commission upon request copies of instruments defining the rights of holders of certain long-term debt not being registered of the registrant and all subsidiaries for which consolidated or unconsolidated financial statements are required to be filed.
9	Omitted—Inapplicable
10(iii)	<ol style="list-style-type: none"> 1. Monsanto Management Incentive Plan of 1988/II (incorporated herein by reference to Exhibit 19(i)2 of the Company's Form 10-Q for the quarter ended June 30, 1988) 2. Deferred Compensation Plan for Non-Employee Directors (incorporated herein by reference to Exhibit 10(c)3 of the Company's Form 10-K for the year ended December 31, 1980) 3. Financial Planning Services for Senior Executives, January 1982 (incorporated herein by reference to Exhibit 10(c)4 of the Company's Form 10-K for the year ended December 31, 1981) 4. Letter Agreement between the Company and John W. Hanley executed on August 3, 1983, as amended by a Letter Agreement dated September 8, 1983 (incorporated herein by reference to Exhibit 19(i)1 of the Company's Form 10-Q for the quarter ended September 30, 1983) 5. Letter Agreement dated February 29, 1988, amending a Letter Agreement between the Company and John W. Hanley executed on August 3, 1983, as amended by a Letter Agreement dated September 8, 1983 (incorporated herein by reference to Exhibit 19(ii) of the Company's Form 10-Q for the quarter ended March 31, 1988) 6. Non-Employee Directors Retirement Plan adopted July 22, 1983 (incorporated herein by reference to Exhibit 19(i)3 of the Company's Form 10-Q for the quarter ended September 30, 1983) 7. Agreements between the Company and Richard J. Mahoney, Earle H. Harbison, Jr. and Nicholas L. Reding entered into as of May 16, 1988 (incorporated herein by reference to Exhibit 19(i)18 of the Company's Form 10-Q for the quarter ended June 30, 1988)

EXHIBIT INDEX (Cont'd)

Exhibit No.

Description

8. Letter Agreement between the Company and Richard J. Mahoney entered into as of May 16, 1988 (incorporated herein by reference to Exhibit 19(i)19 of the Company's Form 10-Q for the quarter ended June 30, 1988)
9. Letter Agreement between the Company and Nicholas L. Reding entered into as of May 16, 1988 (incorporated herein by reference to Exhibit 19(i)20 of the Company's Form 10-Q for the quarter ended June 30, 1988)
10. Letter Agreement between the Company and Earle H. Harbison, Jr., entered into as of September 26, 1986 (incorporated herein by reference to Exhibit 19(i) of the Company's Form 10-Q for the quarter ended September 30, 1986)
11. Letter Agreement dated February 29, 1988, amending a Letter Agreement between the Company and Earle H. Harbison, Jr., entered into as of September 26, 1986 (incorporated herein by reference to Exhibit 19(ii)3 of the Company's Form 10-Q for the quarter ended June 30, 1988)
12. Letter Agreement dated May 16, 1988, amending a Letter Agreement between the Company and Earle H. Harbison, Jr., entered into as of September 26, 1986, and amended by a Letter Agreement dated February 29, 1988 (incorporated herein by reference to Exhibit 19(ii)4 of the Company's Form 10-Q for the quarter ended June 30, 1988)
13. Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of July 28, 1981 (incorporated herein by reference to Exhibit 20 of the Company's Form 10-Q for the quarter ended September 30, 1981)
14. Letter from the Company to Dr. Sheldon G. Gilgore dated February 12, 1986 (incorporated herein by reference to Exhibit 10(iii)14 of the Company's Form 10-K for the year ended December 31, 1986)
15. Stock Compensation Arrangement for Non-Employee Directors adopted January 23, 1987 and effective April 24, 1987 (incorporated herein by reference to Exhibit 19(i)1 of the Company's Form 10-Q for the quarter ended March 31, 1987)
16. Non-Employee Directors Stock Plan adopted April 22, 1988 (incorporated herein by reference to Exhibit 19(i)3 of the Company's Form 10-Q for the quarter ended June 30, 1988)
17. Searle Monsanto Stock Option Plan of 1986, as amended in 1988 (incorporated herein by reference to Exhibit 19(ii)2 of the Company's Form 10-Q for the quarter ended June 30, 1988)
18. Searle Phantom Stock Option Plan of 1986 (incorporated herein by reference to Exhibit 19(i)4 of the Company's Form 10-Q for the quarter ended June 30, 1988)
19. G. D. Searle & Co. Management Incentive Plan (incorporated herein by reference to the Monsanto Company Notice of Annual Meeting and Proxy Statement dated March 11, 1988, wherein a description is set forth on pages 18 and 19)

EXHIBIT INDEX (Cont'd)

<u>Exhibit No.</u>	<u>Description</u>
	20. G. D. Searle & Co. Travel Accident Insurance Plan (incorporated herein by reference to Exhibit 19(i)6 of the Company's Form 10-Q for the quarter ended June 30, 1988)
	21. G. D. Searle & Co. Split Dollar Life Insurance/Supplemental Long Term Disability Plan (incorporated herein by reference to Exhibit 19(i)7 of the Company's Form 10-Q for the quarter ended June 30, 1988)
	22. G. D. Searle & Co. Legal/Tax/Financial Counseling Plan (incorporated herein by reference to Exhibit 19(i)8 of the Company's Form 10-Q for the quarter ended June 30, 1988)
	23. G. D. Searle & Co. Executive Relocation Plan (incorporated herein by reference to Exhibit 19(i)9 of the Company's Form 10-Q for the quarter ended June 30, 1988)
	24. G. D. Searle & Co. Supplemental Medical Reimbursement Plan (incorporated herein by reference to Exhibit 19(i)10 of the Company's Form 10-Q for the quarter ended June 30, 1988)
	25. Split-dollar Life Insurance Plan (incorporated herein by reference to Exhibit 10(iii)19 of the Company's Form 10-K for the year ended December 31, 1987)
11	Omitted—Inapplicable; see "Earnings per Share" on page 40 of the 1988 Annual Report
12	Omitted—Inapplicable
13	The Company's 1988 Annual Report to shareowners. (The electronic submission includes only the financial report section of the Annual Report, consisting of pages 20 through 43 of that Report.) Only those portions expressly incorporated by reference into this Form 10-K are deemed "filed"; other portions are furnished only for the information of the Commission.
18	Omitted—Inapplicable
19(i)	<ol style="list-style-type: none"> 1. Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of April 29, 1985 2. Letter Agreement dated February 29, 1988, amending a Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of April 22, 1983 3. Agreement between the Company and Dr. Howard A. Schneiderman entered into as of May 16, 1988
19(ii)	<ol style="list-style-type: none"> 1. Monsanto Management Incentive Plan of 1974, as amended in 1978, 1979, 1981, 1982, 1983, 1984 and 1988 2. Monsanto Management Incentive Plan of 1984, as amended in 1987 and 1988 3. Monsanto Management Incentive Plan of 1988/I, as amended in 1988

EXHIBIT INDEX (Cont'd)

<u>Exhibit No.</u>	<u>Description</u>
	4. Letter Agreement dated April 22, 1983, amending a Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of July 28, 1981
	5. Letter Agreement dated September 8, 1983, amending a Letter Agreement between the Company and Dr. Howard A. Schneiderman entered into as of July 28, 1981, as amended by a Letter Agreement entered into as of April 22, 1983
22	Subsidiaries of the registrant (See page 32)
23	Omitted—Inapplicable
24(ii)	1. Consent of Independent Auditors (See page 33) 2. Consent of Company Counsel (See page 33)
25	Powers of attorney submitted by Marguerite R. Barnett, Joan T. Bok, Donald C. Carroll, C. R. Dahl, Richard I. Fricke, John W. Hanley, Earle H. Harbison, Jr., B. C. Harris, Robert M. Heyssel, Howard M. Love, Richard J. Mahoney, Buck Mickel, John S. Reed, William D. Ruckelshaus, John B. Slaughter, Francis A. Stroble and Stansfield Turner (filed under cover of Form SE, March 23, 1989)
28	Summarized Financial Information—The NutraSweet Company (See page 34)

Only Exhibits Nos. 13, 22, 24(ii) and 28 have been included in the printed copy of this Report.

SUBSIDIARIES OF THE REGISTRANT

The following is a list of the Company's subsidiaries as of December 31, 1988, except for unnamed subsidiaries which, considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary.

	Percentage of Voting Power Owned by Monsanto
Fisher Controls International, Inc. (Delaware Corporation).....	100
G. D. Searle & Co. (Delaware Corporation)	100
Monsanto Europe, S.A. (Belgian Corporation)	100
Monsanto International Holdings, Inc. (Delaware Corporation).....	100
Monsanto International Sales Company, Inc. (Virgin Islands Corporation)	100
Monsanto p.l.c. (United Kingdom Corporation).....	100
The NutraSweet Company (Delaware Corporation).....	100

CONSENT OF INDEPENDENT AUDITORS

MONSANTO COMPANY:

We hereby consent to the incorporation by reference in Monsanto Company's Registration Statements, in each case as amended as of the date of this consent, on Form S-8 (Nos. 2-36636, 2-76696, 2-53152, 2-61107, 2-90152, 33-13197 and 33-21030) of our opinions dated February 24, 1989, appearing in and incorporated by reference in this annual report on Form 10-K of Monsanto Company for the year ended December 31, 1988.

DELOITTE HASKINS & SELLS

Saint Louis, Missouri
March 24, 1989

CONSENT OF COMPANY COUNSEL

I hereby consent to the reference to Company counsel in the "Commitments and Contingencies" note to the financial statements in the Company's 1988 Annual Report to shareowners and incorporated in the Company's Registration Statements on Form S-8 (Nos. 2-36636, 2-76696, 2-53152, 2-61107, 2-90152, 33-13197 and 33-21030).

RICHARD W. DUESENBERG
General Counsel
Monsanto Company

Saint Louis, Missouri
March 24, 1989

SUMMARIZED FINANCIAL INFORMATION

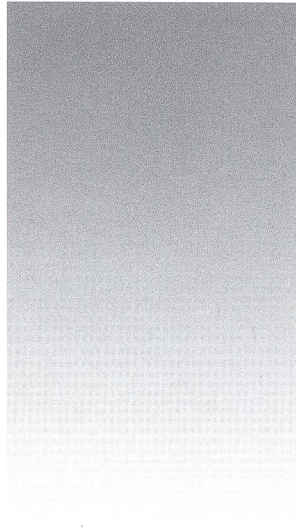
THE NUTRASWEET COMPANY

(Dollars in millions)

	At December 31, 1988	At December 31, 1987	
Current assets.....	\$ 188	\$ 250	
Noncurrent assets	1,297	1,473	
Current liabilities	125	108	
Noncurrent liabilities	575	890	
	For the Year Ended December 31, 1988	For the Year Ended December 31, 1987	For the Year Ended December 31, 1986
Net sales.....	\$736	\$722	\$711
Costs and expenses	582	577	569
Operating income	154	145	142
Net income	56	30	24

NOTE: Monsanto Company has guaranteed the 8.70% Debentures of its wholly-owned subsidiary, The NutraSweet Company (formerly G. D. Searle & Co.), that were registered pursuant to Section 12(b) of the Securities Exchange Act of 1934, and listed on the New York Stock Exchange. A total of \$13.5 million of the Debentures were outstanding at December 31, 1988. The summarized financial information is presented above because the Securities and Exchange Commission and the New York Stock Exchange have consented to The NutraSweet Company's terminating reporting under the Securities Exchange Act of 1934.

Monsanto



The strategy is working

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Monsanto's Commitments

Monsanto Company makes and markets high-value chemical and agricultural products, pharmaceuticals, low-calorie sweeteners, industrial process equipment, man-made fibers, plastics and other performance materials.

In doing so, we are committed to serving the interests of all our stake holders around the world by:

- Aiming for a consistent and superior return on equity for our shareowners,

- Meeting the needs of customers with the highest standards of value, quality and service,
- Providing employees with safe and rewarding work in an environment where each has an equal opportunity to succeed, and
- Striving for a lasting and rewarding partnership with neighbors.

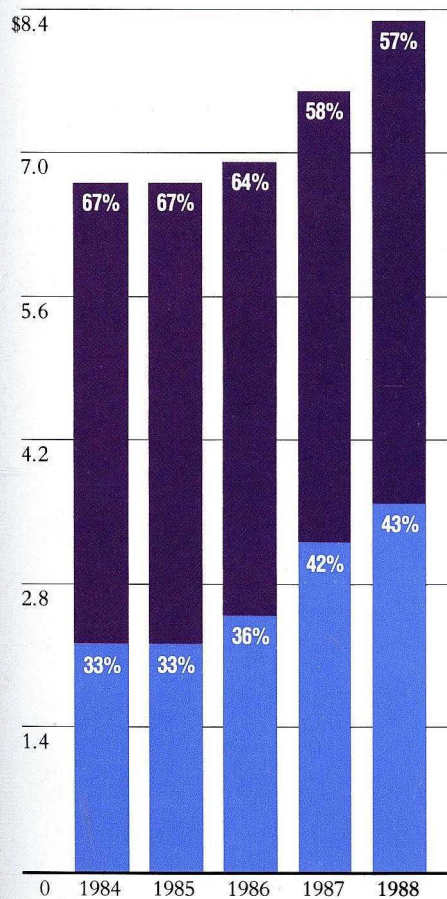
Operational Highlights

(Dollars in millions, except per share)

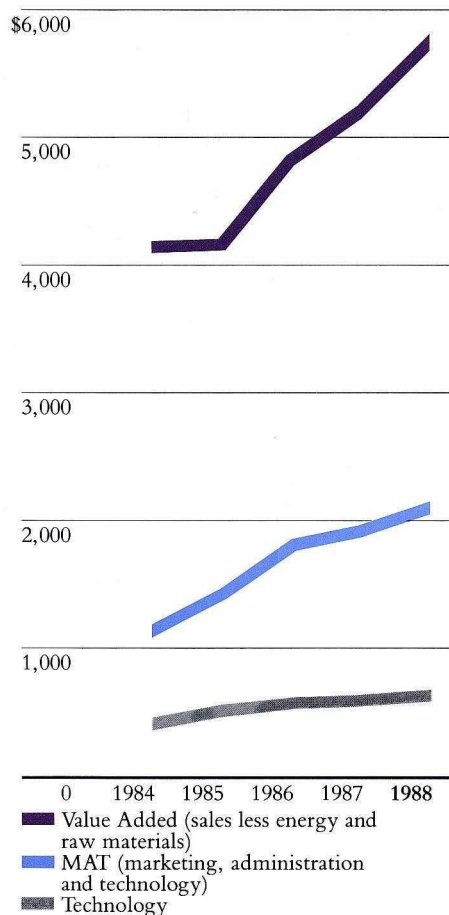
	1988	1987	1986
Net Sales	\$ 8,293	\$ 7,639	\$ 6,879
Net Income	\$ 591	\$ 436	\$ 433
Per Share:			
Net Income	\$ 8.27	\$ 5.63	\$ 5.55
Dividends	2.95	2.75	2.575
Shareowners' Equity	55.21	52.65	48.69
Depreciation and Amortization	\$ 703	\$ 679	\$ 780
Cash Provided by Operations	\$ 1,304	\$ 902	\$ 960
Research and Development Expenses	\$ 575	\$ 557	\$ 523
Return on Shareowners' Equity	15%	11%	12%
Percent of Total Debt to Total Capitalization	34%	35%	35%
Shareowners (year-end)	66,066	68,032	70,367
Shares Outstanding (year-end, in millions)	69	74	78
Employees (year-end)	45,635	49,734	51,703

Global Sales
(dollars in billions)

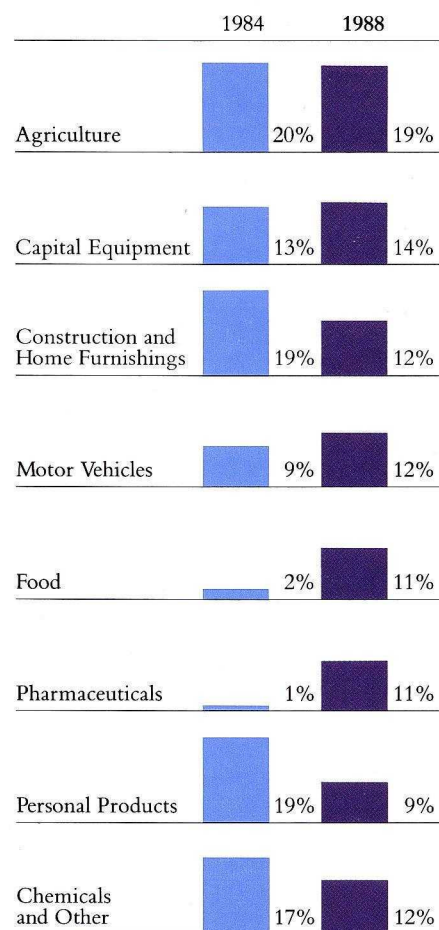
■ Sales in the United States
■ Sales in all other countries



Value Added
(dollars in millions)



Market Mix
(percent of total sales)



The Strategy Is Working

Richard J. Mahoney,
Chairman and CEO
(left), and Earle H.
Harbison, Jr.,
President and COO



In 1988 Monsanto turned in its best financial performance ever. Net income reached \$591 million, one-third more than in any other year in our history.

Those results moved the Company significantly forward toward the goal we announced "to become one of the great industrial enterprises of the world." Financial performance, which enables us to reward all the stake holders in Monsanto, moved toward our target of 20 percent return on shareowners' equity (ROE) in the early 1990s.

When we first announced that financial goal a few years ago, many observers of our industry were skeptical. However, we are meeting, even exceeding, the intermediate targets on the way to our ROE goal. The strategy carefully constructed and put into place during the past decade is working, thanks to 46,000 Monsanto people worldwide.

- ROE improved in 1988 to more than 15 percent from 1987's 11 percent, putting us a full year ahead of our plans.
- Value added — the difference between selling price and the cost of raw materials and energy — increased to 70 percent of sales in 1988. We expect continued increases in this measure in the years ahead.
- Customers rewarded our renewed commitment to quality, innovation and service by buying a record \$8.3 billion of our products, 43 percent of which were sold outside the United States.

Strong financial results, however, are only one measure of greatness. We must also behave in the manner of the very best. Last year, in a book for employees, *A Commitment to Greatness*, I explained how Monsanto as a great company must behave.

I wrote that greatness rests on commitment to the highest of standards and principles. Those include safety in the workplace and protection of the environment. All employees must have an equal opportunity to succeed, and then be *empowered* by their management to get the job done. The people in a great company have a drive for results and complete dedication to serving customers, wherever they are around the world. Above all, we must do the right thing in all circumstances.

Our commitment to these principles must endure through bad times as well as good. Certainly, economic conditions in 1988 generally were favorable around the world; indeed, most chemistry-based companies performed well. However, the measure of financial strength isn't one good year, but consistently good years. We're not recession-proof, but we are now far more recession-resistant.

To achieve that, we have focused on less cyclical markets and on products linked directly to our customers' view of value. In 1988, one-third of our sales were to end-use markets closely linked to industrial business cycles. In 1980, it was two-thirds.

This course delivered outstanding results in 1988, and we see continuing market gains in 1989 across the corporation.

In the agricultural business, sales volumes of products based on glyphosate (the active ingredient in *Roundup* herbicide) increased by 29 percent over 1987 volumes. These products are tailored to the cost and performance needs of specific groups of customers. Growing residential and turf markets increase the prospects for these products.

The chemicals unit, one of the top-performing chemical companies in the world, met its financial targets, as it has now done three years running. The chemicals, fibers and plastics businesses received quality-supplier awards from Goodyear, Chrysler, Pillsbury, Sony, Smith-Corona, 3M and General Electric, among others. I see more dedication to customers' needs, service and quality at Monsanto today than ever before. That close attention to the people who pay the bills is an absolute requirement of a value-added business.

The Chemical Company in 1988 developed a new modified version of *Saflex* plastic interlayer, called *Solarflex*, to reduce heat buildup in automotive interiors. The chemicals unit also introduced new high-performance thermoplastic alloys and new premium fibers.

For G.D. Searle & Co., *Calan* anti-hypertensive drug had sales of more than \$240 million in 1988, and it continues to grow. *Cytotec* anti-ulcer drug received approval in the United States, which joined a

number of other nations that have approved its use. *Cytotec* is the only drug available to prevent or treat ulcers caused by anti-pain or anti-inflammatory drugs used by millions of people suffering from arthritis and other illnesses.

Sales of diet soft drinks containing 100 percent *NutraSweet* brand sweetener continued to increase dramatically. Also in 1988, *NutraSweet* received approvals in France, Brazil and the Soviet Union. Prospects for growth remain strong.

Fisher's strategy of marketing integrated manufacturing solutions began yielding results in 1988. Record levels of total incoming orders were received, and *PROVOX* instrumentation turned profitable after several years of market development. Fisher entered 1989 with its highest backlog ever.

In 1988, we continued to prune under-performing assets and announced the sale of our silicon wafer business to Huels AG. The employees of that business delivered the quality and service that normally produce satisfactory business results, and the business earned money in 1988. But some corporate decisions during the past decade weren't as successful, and the business never performed consistently well. Huels has the necessary commitment to the business to succeed.

Financial markets gave the Company good marks for the year, with one troublesome exception. In the third quarter, news from a Minnesota court case involving G.D. Searle & Co. caused Monsanto's stock to drop sharply. Fear of a surge of similar suits led many investors to overreact. The surge did not occur, and our stock has recovered most of the lost value. We repeat here for our shareowners that any product claims arising from these Searle suits will have no material financial impact on the Company.

This situation was yet another unfortunate result of the unique U.S. liability system, which often discourages new-product development and limits the competitiveness of U.S.-based companies in worldwide markets. There are signs of change, but this issue continues to hold my personal interest and to prompt my public efforts because of its implications for a science and technology company.

Also of great personal interest is Monsanto's top priority for the future — new products. We must

develop more of them and bring them to market more quickly than ever. We're making good progress. Some examples:

The launch of *Cytotec* anti-ulcer drug in the United States will be followed shortly by an impressive list of new pharmaceuticals.

Dimension herbicide, a crabgrass killer that really works, will be commercialized within 12 months. It's the first product from a promising new family of chemistry. Bovine somatotropin (BST), which improves efficiency in milk production, is awaiting approval by the U.S. Food and Drug Administration (FDA). It will be our first biotechnology product, and it has major worldwide potential.

The *NutraSweet* Company is expected in 1989 to introduce a major product, *Simplese* all-natural fat substitute. A good-tasting substitute for fat in ice cream, salad oil and other products, *Simplese* is cleared for sale in the United Kingdom and West Germany, and is under review by the U.S. FDA.

These products, and many more after them, constitute a central component in the corporate strategy. Our new-product pipeline is as robust as it ever has been. We're spending a great deal of money on R&D to fill that pipeline. We recognize the cost, but we also recognize the leverage it has on our future. We *will* produce results from this investment.

The redirection of the Company is clear. A feeling of excitement and accomplishment is building across the Company, and it's well earned. Now we must have the discipline to keep the momentum going. We must deliver the results that provide rewards to all our stake holders — shareowners, employees, customers and neighbors. And we must have the vision to look beyond today and seize the opportunities that are emerging around the world.

The strategy is working.



Richard J. Mahoney
Chairman and Chief Executive Officer
March 6, 1989

The Strategy At Work

*By Earle H.
Harbison, Jr.,
President and Chief
Operating Officer*

Monsanto's corporate strategy is working. The steady financial progress of recent years, particularly the best-ever results of 1988, shows we are on course toward our financial goals.

But the numbers show only the results, not the strategy itself in action. They do not show 46,000 Monsanto employees finding better ways of doing business every day — all to move this Company toward the greatness it can achieve.

In this report, we spotlight Monsanto's strategy at work. This includes optimizing income from current assets through impressive productivity gains. Don Bell, a prime architect of a strategy that has revolutionized manufacturing, tells the story.

The strategy includes creating unique value for our customers through internal R&D. Will Carpenter and Lee Miller show how rejuvenated chemical herbicide research and pioneering biotechnology are leading to new agricultural products.

Licensing, acquisitions and joint ventures all complement research as routes to new products. Ronald Goode and Hendrik Verfaillie tell how G.D. Searle & Co. and Monsanto Agricultural Company follow those routes.

In today's global economy, we must respond to the specific needs of distinct geographical markets. Kim Dong Sung and James Nisbet highlight our activities in Korea and Brazil.

Earning the right to operate is basic to our corporate strategy. Hal Corbett points to Monsanto's achievements in environmental stewardship.

These cases show our strategy at work, but they are not unique. Rather, they represent numerous instances of thousands of Monsanto employees accepting the challenge of greatness. Nor do these case studies tell the whole Monsanto story. The overview of operating company performance is presented in the financial review and statements, on pages 19-43.

These cases do show the strategy being put into practice by Monsanto people around the world — excited and determined people who will place Monsanto among the handful of the world's great industrial enterprises.

Plant Of The '90s

Great productivity improvements come from employee involvement, a focus on quality, and advanced technology, as in production of Saflex interlayer in Springfield, Massachusetts.



by Don Bell, Director, Fiber Manufacturing, Monsanto Chemical Company*

To succeed in global competition, we need to use manufacturing as a competitive weapon in ways we haven't done before.

One of the critical needs is earning recognition in the industries we serve as a quality producer — to build partnerships with our customers that benefit both them and ourselves.

These improvements have been taking place in plants throughout Monsanto with some dramatic results. I know firsthand the changes in our fibers manufacturing, which makes a good case study.

To be a successful manufacturer of nylon and acrylic fiber for *Wear-Dated* carpet and apparel, we identified two challenges: improve productivity by 50 percent in three years, and improve quality dramatically while making it a line responsibility.

These simple objectives represent multimillion-dollar challenges of a magnitude we've never faced before. The response has been threefold: enlightened personnel management, a systematic approach to quality improvement, and advanced computer-integrated manufacturing.

Each of these changes would be beneficial by itself, but the "Plant of the '90s" combines all three. That's what we installed in the plants at Pensacola, Florida; Decatur, Alabama; Greenwood, South Carolina; and Chocolate Bayou in Alvin, Texas.

Workers Given More Freedom, Responsibility

We gave our employees more freedom and bolstered their commitment by creating self-directed work groups that eliminated one layer of supervision. We asked our people to use their minds as well as their hands. We invited them to meet with the people who use our products, so our employees could define doing a good job in the same terms as the customer.

We improved the quality and quantity of business information available to line employees so that they could see the priorities for themselves and work on real-life solutions. In some instances, our operators can now look at a control screen and determine — immediately — whether or not the process is making money.

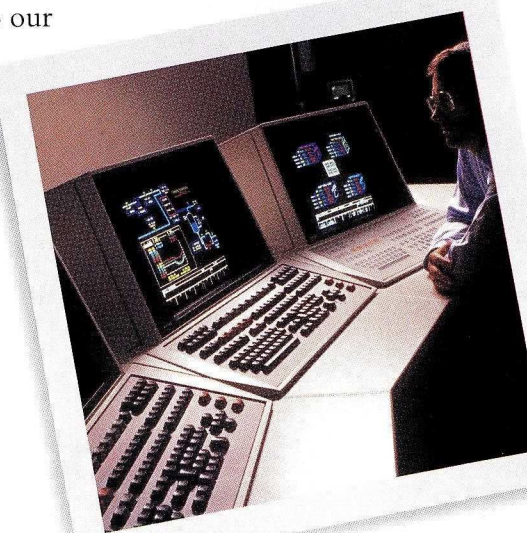
Quality Emphasized

We provided training in the Total Quality approach to continuous improvement, which emphasizes improving systems and processes to deliver consistent results. Joint teams of Monsanto people and their customers were formed to improve quality and yields all the way through to the ultimate consumer. The cost of fixing, recycling or throwing away imperfect products was reduced 65 percent.

Fisher Technology Integral to Improvements

We provided tools, including *PROVOX* process controls from Monsanto's Fisher Controls International subsidiary. Fisher is a strategic partner in the Plant of the '90s, and worked with major computer vendors — including Digital Equipment, Hewlett-Packard and IBM — to develop a coordinated manufacturing strategy. Along with process controls, this strategy combines information systems and electronic communications in a fully integrated network.

The results speak for themselves: Decatur doubled cost savings; productivity at Chocolate Bayou is up over 50 percent; and both Pensacola and Greenwood have demonstrated significant improvement in the consistency of our nylon carpet fibers.



*Effective January 1, 1989, Bell became group vice president, Measurement and Process Instrumentation, at Fisher Controls International Inc., a Monsanto subsidiary.

Other Plants of the '90s

The same synergy among people, technology and Total Quality is dramatically improving productivity and customer service at Monsanto plants from Soda Springs, Idaho, to Antwerp, Belgium. Some examples:

- New technology at the Muscatine, Iowa, plant is designed to reduce emissions of hazardous chemicals by 95 percent and repay the investment by salvaging material.
- A new utility contract, *PROVOX* instrumentation and software, and employee quality improvement teams combined to allow the Soda Springs, Idaho, phosphorus plant to operate above its rated capacity.
- With statistical process controls, the Antwerp, Belgium, plant produced Santoflex rubber processing chemicals at 135 percent of previous capacity.
- The commitment of the people at the Nitro, West Virginia, plant has increased output per employee by 40 percent since 1985.

◀ *PROVOX* controls are central to the fully integrated manufacturing process.

Inventing Products For Agriculture

Basic to a growing stream of new products is strong internal R&D such as genetic engineering of soybean plants to tolerate Roundup herbicide.



by Will D. Carpenter, Vice President, Technology Division, Monsanto Agricultural Company, and Lee A. Miller, Vice President, Animal Sciences Division, Monsanto Agricultural Company

An ever-increasing stream of internally generated new products is an essential component of Monsanto's strategy. At Monsanto Agricultural Company (MAC), we've renewed our research and development program through reinvigorated chemical research and pioneering work in the new science of biotechnology.

We have 1,000 professionals working with a budget of more than \$140 million a year. Thanks to their efforts, MAC's new-product pipeline has more candidates now than at any time in the past 15 years. Most have come from our own labs, bolstered by some technologies we've licensed or acquired.

Thirteen products are on an accelerated commercialization track, and the first of these will come to market during 1989. Another 14 will be evaluated in 1989 for the fast track, and 20 more will be taken to field tests, the last step prior to the decision to take them to market.

New Chemistry Yields Crabgrass Killer

In chemistry, five herbicide candidates are rapidly moving to commercialization. The first will be *Dimension* crabgrass killer, which we anticipate will be tested in the United States in 1989. Superior to existing products, *Dimension* is harmless to desirable grasses and effective season-long. This product comes from a whole new class of herbicide chemistry that has also yielded commercialization-track products for rice, cotton, soybeans, peanuts, trees, nuts and vines.

The market demand to control plant diseases is big and growing, and we have several fungicide candidates under development.

One that protects rice is already on the commercialization track. We also have discovered a chemical hybridizing agent that

increases yields in wheat strains grown in Europe; it too is on a commercialization track.

Biotechnology Promises Unprecedented Products

Our other approach to discovering new products is based on the science of biotechnology, which is delivering unprecedented potential products for the animal and plant sciences.

The first product from this program is bovine somatotropin, or BST, a naturally occurring protein that increases the efficiency of milk production in dairy cows, lowering costs for dairy farmers. BST is awaiting approval by the U.S. Food and Drug Administration.

Porcine somatotropin, or PST, enhances feed efficiency in hogs and delivers to health-conscious consumers leaner pork with less fat. Regulatory approval is expected in the early 1990s.

We are also developing genetically engineered varieties of crops that resist certain viruses or insects. Virus- and insect-resistant plants should be introduced toward the mid-1990s. In laboratories, we recently engineered cotton for resistance to certain caterpillars.

One of the most promising plant areas is the engineering of crops that tolerate *Roundup* herbicide. This would benefit farmers by allowing them substantially increased flexibility in their weed control programs.

By the mid-1990s, we plan to introduce varieties of soybeans, cotton and canola tolerant to *Roundup*. We're also working on even larger worldwide crops, wheat and corn, to make them tolerant to *Roundup*.



Tracking Microbes

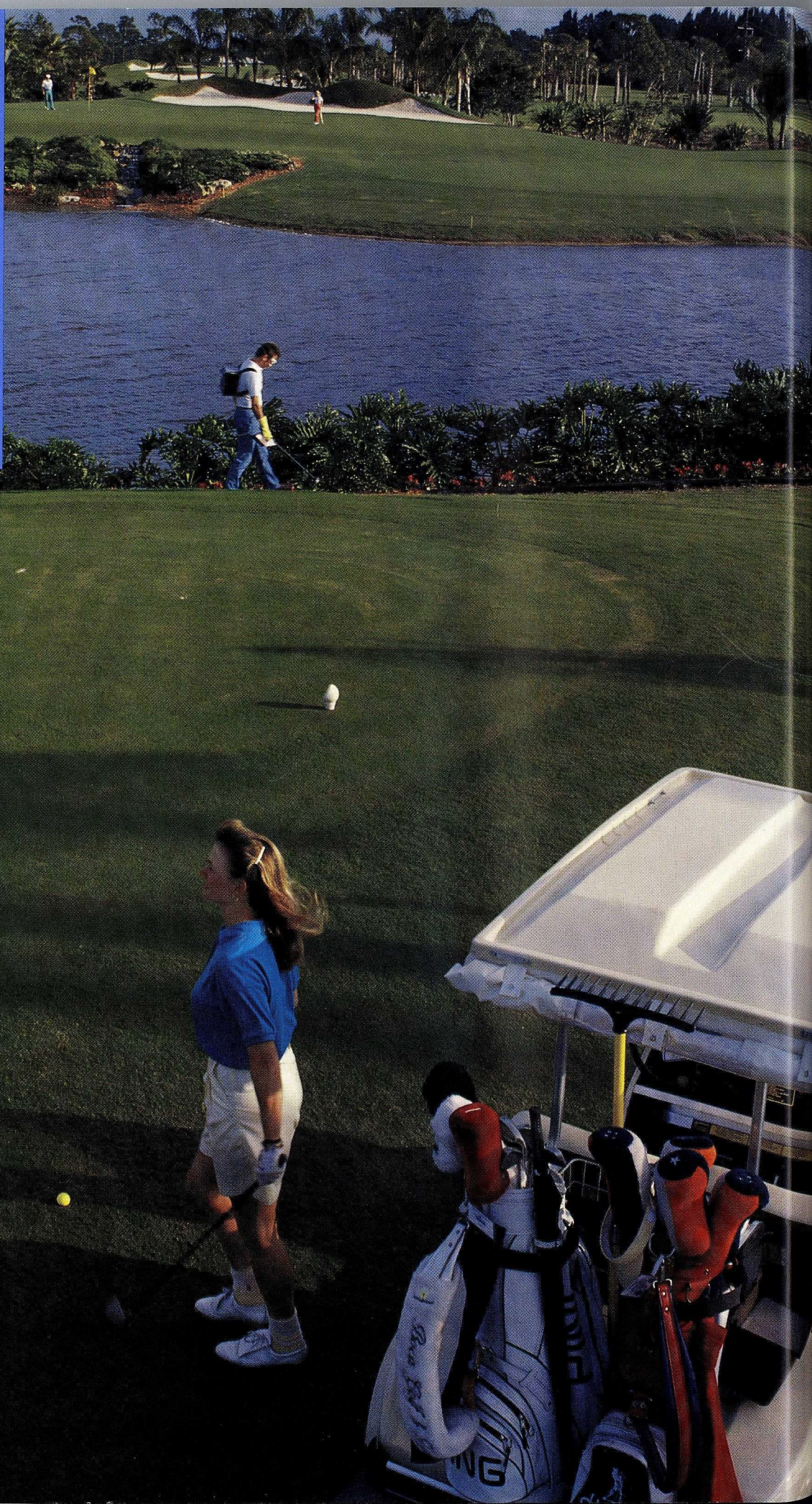
If genetically engineered microbes are to be used to protect plants from insects and disease, scientists must first know how those microbes behave in soil. Do they stay in place, or do they migrate? How long do they survive? Such questions are central to both the testing and marketability of genetically engineered microbes.

Monsanto is the research leader in answering these questions. Our scientists have engineered a marking system onto a common strain of soil bacteria, allowing their fates to be observed. This technique has been tested successfully in the field and in scores of university research laboratories to which we have made our work freely available. These tests are proving the efficacy and value of our microbial marking method as a research tool.

◀ A protein that increases efficiency of milk production in dairy cows will be Monsanto's first biotechnology product.

Licensing, Acquisitions, Joint Ventures

Many new products, such as Expedite pesticide applicators, come from external sources.



by Ronald L. Goode, Ph.D., Senior Vice President, Corporate Commercial Development, G.D. Searle & Co., and Hendrik A. Verfaillie, Vice President, Commercial Development, Monsanto Agricultural Company

Monsanto intends to increase shareowner value with new and better products. Some come from our own research, but some equally important products come from licensing, acquisitions and joint ventures.

At G.D. Searle & Co., our goal is for such externally derived products to provide \$2 billion in sales by the mid-1990s. Sales of such products came to \$416 million in 1988. In Monsanto Agricultural Company, acquired and licensed products will provide 25 to 30 percent of MAC's sales by the mid-1990s, compared with less than 5 percent in 1988.

Licensing Fills Short- and Long-Term Needs

Some licensing efforts at MAC fill short-term product needs. That was the case when we recently bought the distribution, patent and technology rights for *Expedite* pesticide applicator outside the United Kingdom. That was also the reason we obtained U.S. distribution rights for *Clipper* tree growth regulator and access to a cereal fungicide in Europe.

Looking to the longer term, we now have several licensed herbicides and fungicides under commercial development, and we regularly evaluate new candidates.

Licensing at Searle has already produced one big winner. The family of *Calan* cardiovascular drugs has become Searle's biggest seller, accounting for more than \$240 million in 1988 sales. Another licensed product, lomefloxacin, looks especially promising. This anti-infective belongs to the third-largest and fastest-growing segment of the market, quinolones.

During the past year alone, Searle licensed 10 compounds that will be developed as ethical drugs.

Unlike any other major pharmaceutical company, we have

established a worldwide group whose sole mission is the development of licensed compounds. Its structure and mission discourage the "not invented here" syndrome, in which licensed compounds get treatment inferior to that of in-house discoveries. About every 10 days, Searle looks at another new compound from external sources.

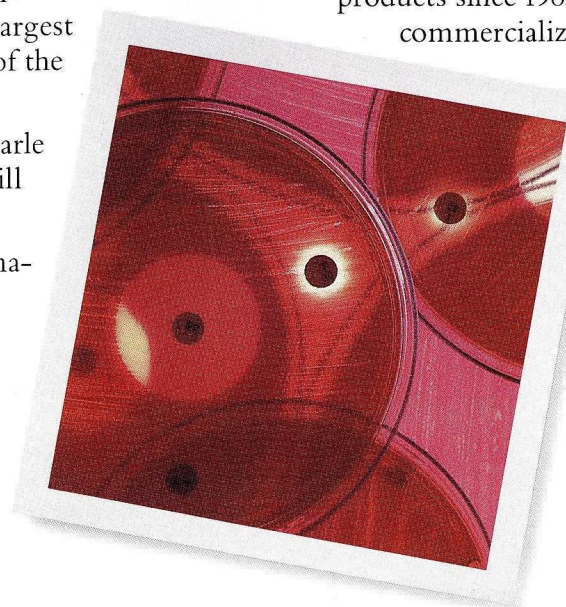
Acquisitions, Mergers Add Products, Market Position

Acquisitions and mergers are ways to obtain new products and to establish a new market position. To complement *Roundup* lawn and garden herbicide, MAC in 1988 bought the lawn- and garden-care product line sold under the *Greensweep* brand. We also bought the Western Hemisphere rights to Rohm and Haas chemical hybridizing agents, which improve the hybridization process. One such agent promises to deliver higher yields in North American wheat strains.

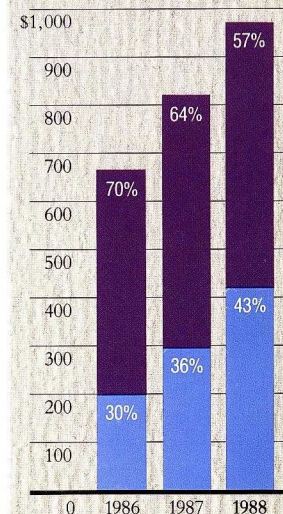
Also in 1988, Searle merged its Italian affiliate, Searle Italia, with the ethical pharmaceutical division of Schiapparelli Farmaceutici S.p.A. to get a larger presence in the Italian pharmaceutical market, the world's fifth-biggest. One of Searle's priorities is an acquisition in West Germany, the world's third-biggest pharmaceuticals market, where we are now under-represented.

Joint ventures, another useful strategy, spread risks of new product development. Lorex, Searle's joint venture with a French pharmaceutical firm, has been developing new products since 1982. We are close to

commercializing the first of these, *Kerlone* (betaxolol) hypertensive drug. Searle now has 13 joint ventures.



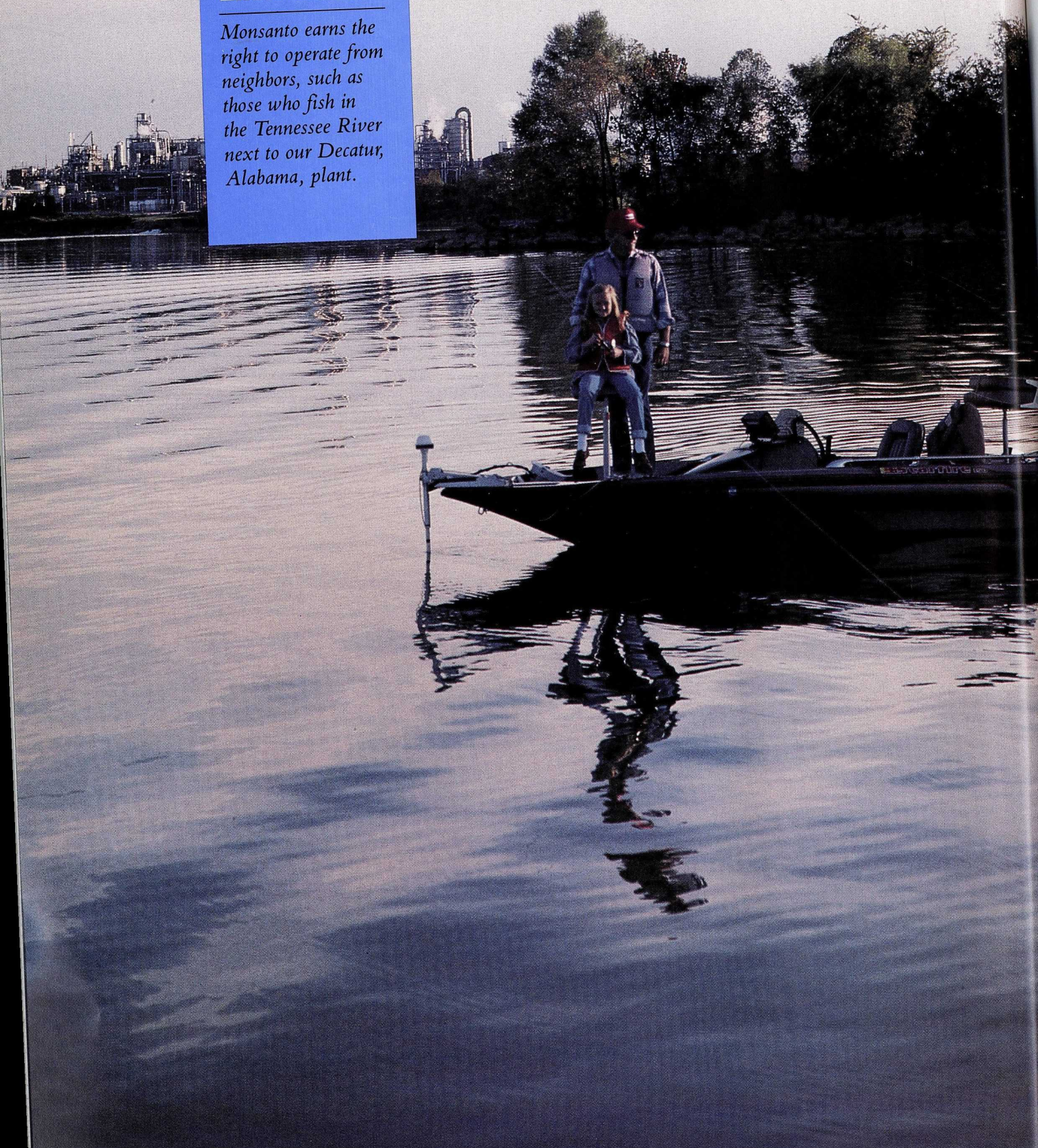
Growing Contribution of Licensed/Acquired Searle Products (dollars in millions)



◀ In-vitro tests demonstrate the superior anti-infective efficacy of lomefloxacin, which was recently licensed by Searle.

Protecting The Environment

Monsanto earns the right to operate from neighbors, such as those who fish in the Tennessee River next to our Decatur, Alabama, plant.



by Harold J. Corbett, Senior Vice President,
Environment, Safety and Health,
Monsanto Company

Monsanto's environmental vision is simply stated: Monsanto will do the right thing and be known for doing the right thing.

We will do the right thing first and foremost because that's the kind of company we are, and we expect it of ourselves. Furthermore, it is what the public expects, and it is the public from whom we earn the right to operate.

That vision was expressed in our 1988 goal to reduce toxic air emissions worldwide by 90 percent by the end of 1992. That aggressive initiative follows a series of programs during the last five years that demonstrate our determination to protect human health and the environment.

In 1984, Monsanto approved \$100 million for cleanup of waste sites in which the Company was involved. That same year, following the tragedy at Bhopal, we became the first company to offer to the public our Material Safety Data Sheets on all products and raw materials. We also established the High Hazard Materials Task Force to analyze and reduce potential risks at all manufacturing facilities worldwide. That task force continues to make recommendations to the operating divisions, which have the responsibility for implementation. And in 1988, going far beyond the requirements of the Emergency Planning and Community Right-to-know Act, we actively communicated our data on emissions to air, water and land to a broad range of national and local publics.

Air Emissions Reduced Across Monsanto

All of Monsanto's operating divisions and subsidiaries are involved in the 90 percent reduction program. Teams of manufacturing experts, environmental experts, engineers and others have been formed to make recommendations for specific projects.

Generally, these projects fall into three categories: product substitution, in which less volatile

materials can be substituted to reduce air emissions; process change and modification; and installation of new pollution control technology. These projects will be implemented during the next four years.

Goal Is Reduction of All Wastes

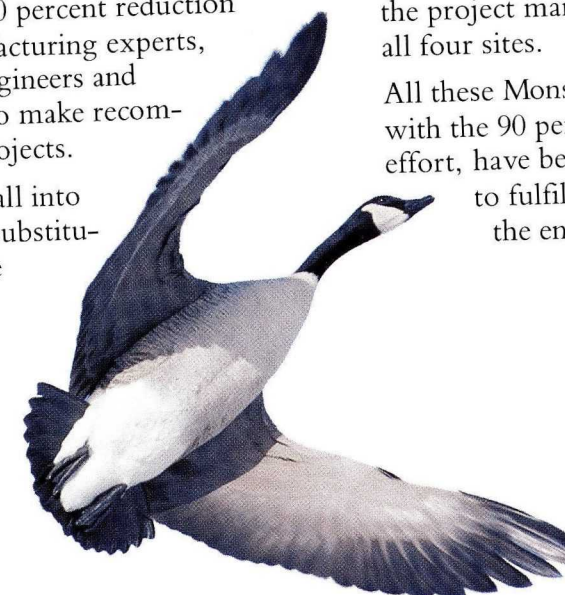
Because reducing emissions to the air can increase emissions to water, land or other media, and because our goal is a net reduction of all wastes, we are also formalizing a general waste elimination program, with specific goals and checkpoints. Each operating division is developing specific plans and recommendations. These include process revisions and material substitutions to eliminate hazardous waste; recycling and reuse within the processor plant; and waste treatment through such technologies as incineration and biotreatment.

Outright elimination and recycling take much longer to achieve, but are more environmentally desirable. Therefore, we are encouraging process research focused on these methods, rather than exclusively on the easier "end-of-pipe" treatment.

Old Waste Sites Cleaned Up

Significant progress has been made on cleanup of a number of major Superfund waste sites. Cleanup is scheduled to begin this year at the Motco site in Texas and the Seymour, Indiana, site. We expect a consent decree to be concluded shortly for the Brio/Dixie Processors site in Texas. A consent decree for cleanup at the Woburn Industrialplex site in Massachusetts has been lodged in federal court. Monsanto is the project manager for cleanup at all four sites.

All these Monsanto programs, along with the 90 percent air reduction effort, have been undertaken to fulfill our vision for the environment.



A Neighbor Speaks

Having Monsanto as a neighbor has been the good fortune of Decatur, Alabama, says the city's mayor, Bill Dukes. "They've set a good example since their first days here and have never deviated," Dukes says.

Part of that record is environmental: According to the mayor, some of the Company's standards exceed those of the Environmental Protection Agency. Part is philanthropic: A Monsanto Fund gift helped build a cancer center for the Decatur General Hospital.

The record also includes community service by Monsanto employees in activities ranging from the Chamber of Commerce to kids' softball teams. "Monsanto," Mayor Dukes says, "is unusually community-minded."



Globalization: Korea

The 20-year partnership between Monsanto and Korea is continually augmented by new businesses. Searle Korea Ltd. was added to the Monsanto family in 1985.



by Kim Dong Sung, Country Director, Monsanto Korea Inc.

Monsanto's 20 years in Korea have been a partnership with the history of modern Korea itself. As Korea has grown and modernized, the Company has supplied many of the nation's basic needs and grown with it. Today, Korea has become an economic force that no global company can ignore.

Monsanto came to Korea in 1968. At that time, we were a nation still recovering from nearly four decades of occupation by a foreign power and two destructive wars. The second was for us the more tragic, since in it Koreans killed Koreans. When the killing stopped in 1953, my country had little left but its mountains and rivers . . . and the people who remained. The people barely survived from one day to the next.

Through the 1960s, we depended heavily on international aid. And we suffered from several chronic economic diseases — trade deficit, government debt, currency devaluation and double-digit inflation.

Today those chronic problems are virtually gone. Our economy is growing more than 8 percent each year, and our products are now known for quality and value throughout the world. Many see Korea as an economic miracle.

Before 1968, Monsanto sold a few products through agents. There were no Monsanto employees in Korea, and no Monsanto products were made here. Today, Monsanto has grown to more than 380 employees in Korea. If we count their spouses and children, Monsanto paychecks support an extended family of more than 1,650 people.

Last year, sales of Monsanto products amounted to nearly \$115 million, including \$50 million from sales of products marketed by our joint ventures.

Monsanto Products Met Special Needs

From the beginning, Monsanto's products provided special value to the Korean nation at each stage of growth. When I was hired in August 1968, Monsanto wanted

someone to introduce two miraculous new herbicides, *Lasso* herbicide for upland crops and *Machete* herbicide for rice and barley.

At the time there was serious overpopulation in rural areas, creating a high jobless rate in the off season. And here was Monsanto wanting to replace 5,000-year-old labor-intensive hand weeding with labor-saving products! But this almost magical chemical weed control helped increase food production for a population moving to the industrializing cities where there were good jobs.

Korea was the first country to use *Machete* on barley and rice, and it was quickly adopted by our farmers. The first sales of liquid *Machete* in 1970 brought in \$35,000. When we introduced the granular form a year later, the demand was so great that we placed an order 100 times the volume of the previous year.

First Investment an Agricultural Joint Venture

This progress led Monsanto to invest in Korea. The result was KORAG, a 50-50 joint venture with Han-Nong Corporation, Korea's largest agricultural chemicals distributor. KORAG was an immediate success. During the first full year of production, it earned more than twice the initial investment.

As Monsanto grew and gained experience in Korea, the growing Korean economy needed other new products. When Korea began manufacturing electronic goods, Monsanto supplied silicon wafers to that budding industry through another joint venture. Although there is a healthy market for electronic materials in Korea, Monsanto's electronic materials business overall has not been able to sustain profitability

and no longer fits the Company's (continued on page 18)



Searle Soaring in Korea

G.D. Searle's business in Korea is soaring. Sales grew 113 percent from 1986 to 1987, and 59 percent from 1987 to 1988. They are expected to grow another 50 percent in 1989.

Beginning with the establishment of Searle Korea Ltd. in 1982, the rapid growth was fueled by local manufacturing, which began in 1985 in an award-winning plant.

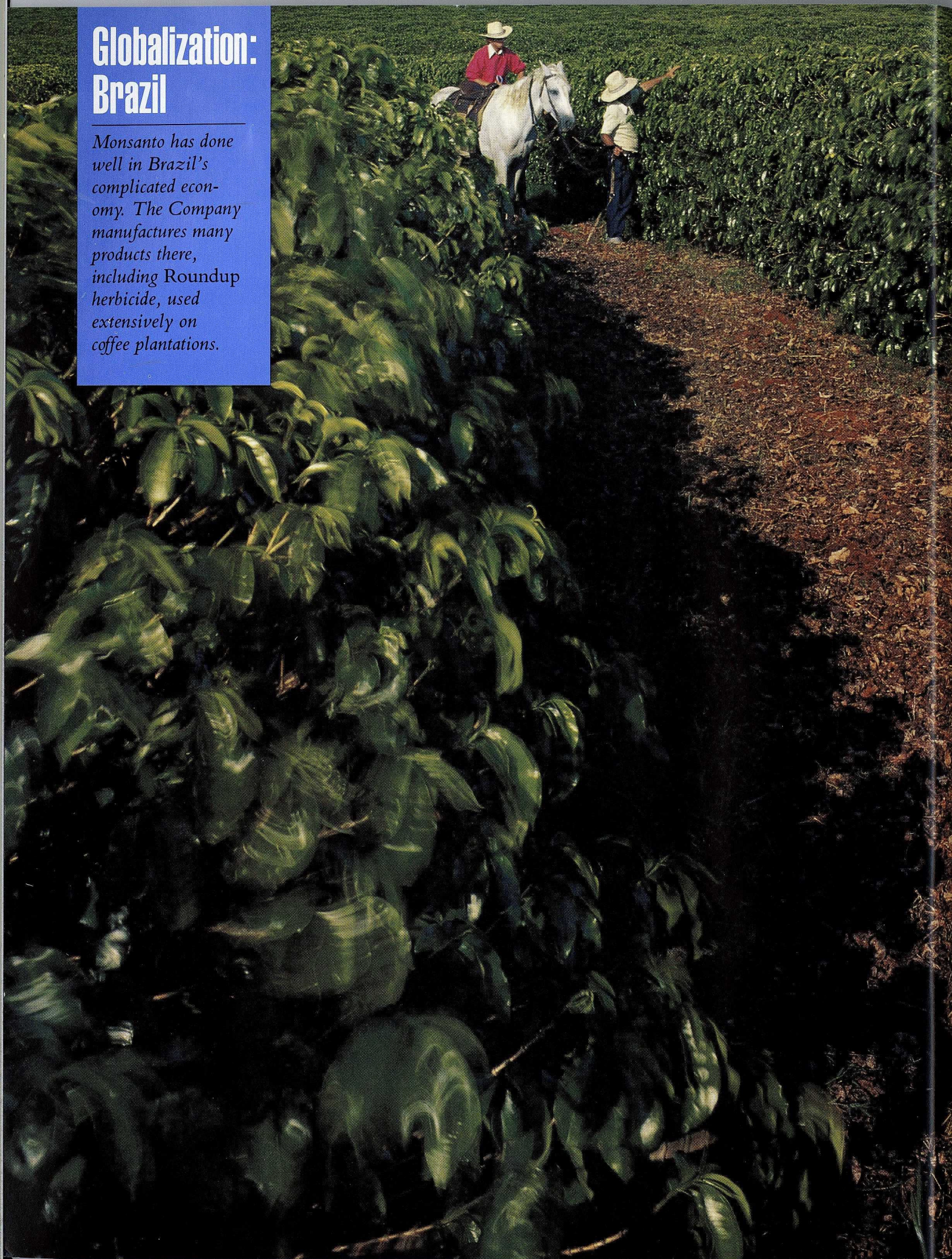
Of its two dozen products, the best-selling prescription drugs are Aldactone diuretic and Cytotec ulcer medication.

Searle Korea is the only pharmaceutical joint venture in Korea with an extensive licensing program. Seven licensed products are sold there under the Searle name, including its two overall best sellers, both non-prescription products.

Searle Korea's prospects are bright in a market that is growing at almost 20 percent a year.

Globalization: Brazil

Monsanto has done well in Brazil's complicated economy. The Company manufactures many products there, including Roundup herbicide, used extensively on coffee plantations.



by James H. Nisbet, President,
Monsanto Brazil

Brazil has become a major world area for Monsanto, and it will grow in importance as our Company becomes more global. We have done well during the 25 years we have been in this huge and complicated land.

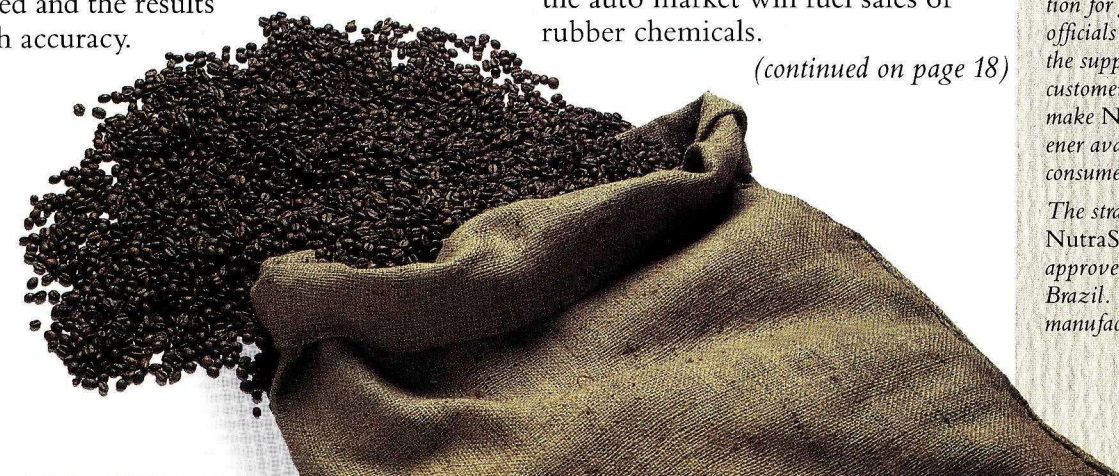
It's risky to generalize about Brazil. Highly industrialized and wealthy in the South, where the economy has long revolved around the sophisticated cities of Rio de Janeiro and São Paulo, Brazil is also a young, emerging frontier nation in the western interior.

Often viewed as a potential power, Brazil is in many respects already an economic giant. It produces almost half of South America's goods, nearly three times as much as the next-largest economy on that continent.

A market economy prevails, yet the government is a major economic force. The government controls imports and exports, and it has created special "market reserves" to encourage the growth of certain Brazilian industries.

The government's presence is felt in another way. That's in the form of hyperinflation — nearly 1,000 percent in 1988. Government borrowing contributes to the inflation, but it has attempted to attack the problem — with wage and price-control "shock treatments," for example, and indexation of prices and wages. The problem remains to be solved, but unlike most countries, Brazil has kept growing in spite of it.

Monsanto has also grown by learning how to do business in this variable and unpredictable economy, which sometimes frustrates managers schooled in the business practices of Europe and North America. To succeed, we've learned the value of being flexible, informal, tolerant, adaptable and agile. Above all, we must be patient and look to the long term, for it is only over time that the complexities can be managed and the results measured with accuracy.



(continued on page 18)

First Significant Investment in 1973

Monsanto entered the Brazilian market in 1963 with the opening of a sales office in São Paulo. We increased our presence in 1973, when we made our first significant investment there in the form of a minority interest in a local company. Within a year, we also invested in a manufacturing facility at São José dos Campos.

Since then, a steady pace of investment — running today at \$20-\$25 million a year — has created perhaps the most comprehensive range of Monsanto operations in any country outside the United States.

From our initial investments in rubber chemical and phosphate production and later investments in polystyrene and herbicide production, the São José dos Campos facility has grown into a complex network of process units making many Monsanto products.

Agricultural, Automotive Markets Largest

Monsanto do Brasil sales, excluding our joint ventures, have climbed from \$5 million in 1974 to \$188 million in 1988, with industrial chemicals and agricultural products leading the way. Brazil is the world's No. 1 coffee producer, and coffee growing constitutes the largest Brazilian market for Roundup herbicide. Brazil, in fact, is the third-largest country for Roundup in the world.

Destined to become an even larger market for Monsanto products is the automobile industry. Brazil today ranks eighth in the world as an automobile manufacturer. By the mid-1990s, it is expected to rank fourth. Already Monsanto is the leading producer of rubber chemicals in Brazil, and the expected growth in the auto market will fuel sales of rubber chemicals.



NutraSweet in a Land of Sugar

Brazil is a land of sugar. The average Brazilian consumes 25 kgs (55 lbs) of sugar each year, compared with 7 kgs (15 lbs) for each person in the United States.

Until early 1988, use of non-sugar sweeteners in Brazil was restricted to a small number of products. The NutraSweet Company sought to change that through an informational campaign.

First, The NutraSweet Company became a regular source of scientific information for government officials. Second, it enlisted the support of potential customers in the effort to make NutraSweet sweetener available to Brazilian consumers.

The strategy succeeded. NutraSweet is now approved for sale in Brazil. It will soon be manufactured there.

Globalization: Korea (continued)



Automobile production is becoming Monsanto's largest Korean market.

automotive market, like *Saflex* interlayer in safety glass and *Santoprene* thermoplastic rubber. The upshot was Monsanto's latest Korean joint venture, Kumho Monsanto Company, founded in 1987.

strategies and objectives. It is being sold.

Joint Venture for Automotive Market Formed

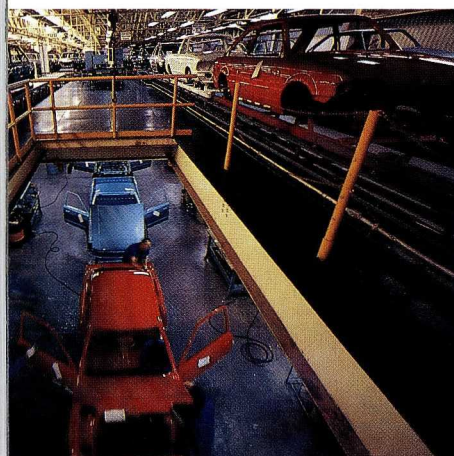
Korea also has emerged as one of the world's major automotive markets. In 1985, we began talks with Korea's largest tire maker, Kumho, who was attracted to our superior rubber chemicals and other first-rate products for the automo-

The Monsanto family in Korea gained another member in 1985, when the Company acquired G.D. Searle & Co. (see sidebar on page 15). This new business is also in step with the increasing modernization of the Korean economy and society.

Thus, Monsanto has evolved and prospered in harmony with Korea, assisting in each stage of Korean development while doing a profitable business. Monsanto continues to develop new products that will help boost Korean agricultural production. Feasibility studies are also under way to determine appropriate investments to supply the automotive market.

Monsanto and Korea are good for each other. We Koreans have a can-do attitude. Our spiritual heritage encourages us not to dwell on problems but instead to seek opportunities. Monsanto will always find new opportunities for profitable business as Korea grows and prospers.

Globalization: Brazil (continued)



Emerging as Brazil's largest customer for Monsanto products is the auto industry.

soon be supplying from a new production unit at São José dos Campos.

NutraSweet brand sweetener is another product with large market potential. Until recently, non-sugar sweeteners were highly restricted by the Brazilian government. But a new legal status for these sweeteners changed that in early 1988 (see sidebar on page 17). Now *NutraSweet* is being sold and a plant

The same market will become a major consumer of *Saflex* plastic interlayer for laminated safety glass. Beginning in 1991, Brazilian law will require laminated safety glass in all new autos. That's why we are building a plant to manufacture *Saflex*.

Automobiles will also be the leading market for *Santoprene* thermoplastic rubber, which we will

is being built at São José dos Campos to satisfy the extraordinary sweet tooth and fit-and-trim attitudes of the Brazilian people.

Quality Gives Competitive Edge

To take full advantage of these and other opportunities in Brazil, we have initiated a Total Quality program. Not only do we expect quality-improvement programs to result in cost savings, but we are convinced that improved quality throughout our operations will also give us a significant competitive advantage. For as Brazil develops further, increased domestic consumption and exports to other countries will lead to demands for higher-quality products. We intend to be the preferred supplier in our targeted markets of the highest-quality products to those customers.

We expect Monsanto's record of success in Brazil to continue. The population is young — 50 percent are below the age of 18. This will provide a growing consumer base and an eager work force. Furthermore, many of the major growth markets in Brazil are ones that Monsanto is well equipped to supply. The future looks promising.

Financial Section

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Unless otherwise indicated by the context, "Monsanto" means Monsanto Company and consolidated subsidiaries, and "the Company" means Monsanto Company only. All dollars are in millions, except per share data.

Management Report

Monsanto Company management is responsible for the fair presentation and consistency of all financial data included in this Annual Report in accordance with generally accepted accounting principles. Where necessary, the data reflect management's best estimates and judgments.

Management also is responsible for maintaining a system of internal accounting controls with the objectives of providing reasonable assurance that Monsanto's assets are safeguarded against material loss from unauthorized use or disposition and that authorized transactions are properly recorded to permit the preparation of accurate financial data. Cost-benefit judgments are an important consideration in this regard. The effectiveness of

internal controls is maintained by: (1) personnel selection and training; (2) division of responsibilities; (3) establishment and communication of policies; and (4) ongoing internal review programs and audits. Management believes that Monsanto's system of internal controls as of December 31, 1988 is effective and adequate to accomplish the above described objectives.



Richard J. Mahoney
Chairman and
Chief Executive Officer



Francis A. Stroble
Senior Vice President and
Chief Financial Officer

February 24, 1989

Audit Committee Report

The Audit Committee is composed of five non-employee members of the Board of Directors and met three times in 1988. It reviews and monitors Monsanto's internal controls, financial reports, accounting practices and the scope and effectiveness of the audits performed by the independent auditors and internal auditors. The Committee also recommends to the full Board of Directors the appointment of Monsanto's principal independent auditors and approves in advance all significant audit and non-audit services provided by such auditors. As ratified by shareowner vote at the 1988 Annual Meeting, Deloitte Haskins & Sells was appointed as independent auditors to examine, and express an opinion as to the fair presentation of, the consolidated financial statements. This opinion appears below.

The Audit Committee discusses audit and financial reporting matters with representatives of the Company's financial management, its internal auditors and Deloitte Haskins & Sells. The internal

auditors and Deloitte Haskins & Sells meet with the Committee, with or without management representatives present, to discuss the results of their examinations, the adequacy of Monsanto's internal accounting controls and the quality of financial reporting. The Committee encourages the internal auditors and Deloitte Haskins & Sells to communicate directly with the Committee.

The Audit Committee has reviewed and approved the financial section of this Annual Report. Pursuant to the recommendation of the Audit Committee, the Board of Directors also has approved the financial section.



Buck Mickel
Chairman, Audit Committee

February 24, 1989

Independent Auditors' Opinion

To the Shareowners of Monsanto Company:

We have audited the accompanying statement of consolidated financial position of Monsanto Company and Subsidiaries as of December 31, 1988 and 1987, and the related statements of consolidated income, shareowners' equity and cash flow for each of the three years in the period ended December 31, 1988. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit

also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly in all material respects the financial position of Monsanto Company and Subsidiaries at December 31, 1988 and 1987, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1988, in conformity with generally accepted accounting principles.



Deloitte Haskins & Sells
Saint Louis, Missouri

February 24, 1989

Statement of Consolidated Income

(Dollars in millions, except per share)

	1988	1987	1986
Net Sales	\$8,293	\$7,639	\$6,879
Cost of goods sold	4,972	4,755	4,344
Gross Profit	3,321	2,884	2,535
Marketing expenses	1,013	918	816
Administrative expenses	474	424	428
Technological expenses	648	615	596
Amortization of intangible assets	231	225	218
Restructuring expense (income) — net		(32)	(158)
Operating Income	955	734	635
Interest expense	(174)	(172)	(201)
Interest income	46	42	41
Other income — net	66	69	161
Income Before Income Taxes	893	673	636
Income taxes	302	237	203
Net Income	\$ 591	\$ 436	\$ 433
Earnings per Share	\$ 8.27	\$ 5.63	\$ 5.55

The above statement should be read in conjunction with pages 37 through 42 of this report.

Key Financial Statistics	1988	1987	1986
Percent Change from Prior Year:			
Net Sales	9%	11%	2%
Operating Income	30	16	—
Net Income	36	1	—
Earnings per Share	47	1	—
As a Percent of Net Sales:			
Gross Profit	40	38	37
Marketing, Administrative and Technological Expenses	26	26	27
Research and Development Expenses	7	7	8
Operating Income	12	10	9
Net Income	7	6	6
Effective Income Tax Rate	34	35	32
Return on Shareowners' Equity	15	11	12

Review of Consolidated Results of Operations

1988 Was Record Year

The strategies established in prior years and the continued economic growth in Monsanto's key markets throughout the world produced strong sales demand, which resulted in record earnings in 1988. Net income for 1988 was \$591 million compared with \$436 million in 1987, a 36 percent increase. Earnings per share for 1988 were \$8.27 versus \$5.63 in 1987, a 47 percent increase. In addition to the strong income performance, earnings per share benefited from the reduction in the number of common shares outstanding as a result of the treasury stock purchase program.

Sales Demand Strong Across All Segments

Net sales increased 9 percent in 1988. Sales volume was 6 percent higher than 1987. The volume improvement was experienced across all operating units. The improvement in sales volume and mix contributed an additional \$2.47 per share to 1988 earnings per share. Demand was strong for both U.S. export and ex-U.S. produced goods as these sales increased 12 percent and comprised 43 percent of Monsanto's total net sales in 1988. New applications and market expansion contributed to robust demand for established agricultural products such as *Roundup* and *Lasso* herbicides. *Alimet* animal feed supplement had a record sales year with a substantial increase in volume. Products such as *Saflex* plastic interlayer and *Lustran* ABS thermoplastics experienced vigorous demand from the automotive and housing industries. Sales demand for *Wear-Dated* stain-resistant carpet fibers continued to grow. The volume growth of *NutraSweet* brand low-calorie sweetener reflected the continued strength of the U.S. diet carbonated soft drink market and further penetration of international markets. Sales of the *Calan* family of pharmaceutical products increased 79 percent.

The overall impact of selling price increases was favorable in 1988. Strong demand supported selling price increases for a number of products. However, the *Roundup* herbicide global marketing strategy, which included reducing selling prices, contributed to increased market penetration and development of new markets, which resulted in substantial volume increases. Internationally, the continued weakness of the U.S. dollar gave U.S.-produced goods a competitive advantage in certain world area markets. The currency translation of ex-U.S. denominated sales into U.S. dollars also produced a favorable effect.

Gross Margin Improved

Gross profit was 40 percent of sales in 1988, a good improvement compared with 38 percent for the prior year. Monsanto's strategy to exit from cyclical

commodity chemicals businesses in favor of higher value-added products has improved the quality of the product portfolio. This shift to higher margin products contributed significantly to the gross profit improvement in 1988. In addition, benefits were realized from continuing manufacturing cost reduction projects. The effect of higher selling prices (\$240 million) exceeded the effect of raw material cost increases (\$140 million).

Marketing and Administrative Expenses Affected by Higher Sales and Profitability

Marketing expenses increased 10 percent in 1988. Of this increase, about one-fourth was from higher agents' sales commissions resulting from the higher sales level. Another one-fourth of the increase was the effect of ex-U.S. currency translation, and the remaining increase generally was due to inflation. Marketing expenses as a percent of net sales were 12 percent in 1988, unchanged year-to-year. Marketing expenses as a percent of net sales differ substantially between operating units, the highest being in Pharmaceuticals and the lowest being in Chemicals.

Administrative expenses increased 12 percent in 1988. About one-half was from higher employee incentive compensation resulting from the record profitability. The remainder of the increase was due to inflation and the effect of ex-U.S. currency translation.

Research Commitment Continues

Monsanto continues to commit significant resources to research with technological expenses of \$648 million in 1988, 5 percent higher than 1987. Significant expenditures were in the areas of life sciences — pharmaceuticals and agriculture. A strategy of in-house research complemented by university collaboration and aggressive licensing programs sustains the momentum established in recent years. As a result, Crop Chemicals has more potential new products in the pipeline than at any time in the past 15 years. Pharmaceuticals has numerous products in various stages of research and development, some of which are now awaiting regulatory approval for commercialization. *Cytotec* anti-ulcer drug was approved in the United States in late 1988 and will be commercially launched in 1989. Animal Sciences' bovine somatotropin and The NutraSweet Company's *Simplex* all-natural fat substitute are anticipated to be introduced in 1989. Monsanto also has devoted significant research effort to existing product lines, focusing primarily on improving the technology and expanding product applications, such as a *Saflex* plastic interlayer that can screen out heat-causing solar radiation.

Review of Consolidated Results of Operations (continued)

Operating Income Up 30 Percent

Operating income was \$955 million in 1988, up 30 percent from \$734 million in 1987. The operating profit margin improved to 12 percent of net sales in 1988 as compared to 10 percent in the prior year. Sales volume and selling price improvements favorably affected operating income; but rising raw material and marketing costs had an unfavorable impact.

ROE Improved to 15 Percent

The 15 percent return on shareowners' equity (ROE) in 1988 represents considerable improvement over the 11 percent attained in 1987 and demonstrates continuing progress toward management's target of a 20 percent return on equity by the early 1990s. The 1988 improvement was primarily due to the higher profit performance, supplemented by the treasury stock purchase program.

1987 Showed Improvement

Net sales increased to \$7,639 million in 1987, an 11 percent increase over 1986. Sales volume increased 8 percent in 1987. Worldwide selling prices increased 3 percent.

The gross profit margin in 1987 was 38 percent versus 37 percent in 1986 due to increased sales of products with higher margins (Pharmaceuticals and Crop Chemicals). Chemicals margins were lower because of a selling price/raw material cost squeeze. Monsanto's total raw material costs increased approximately 13 percent. The gross profit margin was adversely affected in 1986 by the \$90 million obsolescence charge for the Electronic Materials property write-down.

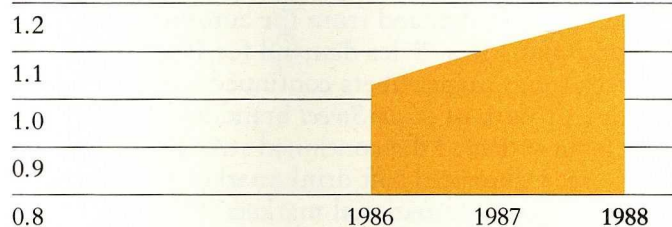
Net income of \$436 million in 1987 was up marginally from \$433 million in 1986. Included in 1986 net income, however, was \$85 million of net gains associated with unusual items resulting from the sale, closure or impairment of facilities and businesses as well as other unusual income and expenses. Only \$18 million was included in 1987 for gains from similar items.

The countries in which Monsanto operates have experienced varying degrees of inflation; therefore, the historical cost of certain assets is generally lower than current cost. Generally accepted accounting principles require financial statements to be prepared at historical cost. Consequently, the depreciation expense reported in the Statement of Consolidated Income is less than that which would be reported using current cost.

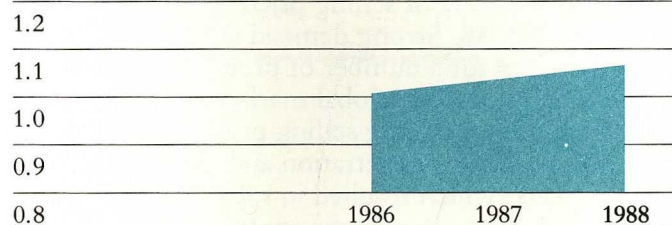
Analysis of Change in Earnings per Share — Better (Worse)

	1988 vs. 1987	1987 vs. 1986
Sales Related Factors:		
Selling prices	\$ 1.78	\$ 1.21
Sales volume and mix	2.47	2.12
Total Sales Related Factors	4.25	3.33
Cost Related Factors:		
Raw material costs	(1.02)	(1.70)
Other manufacturing costs	0.19	(0.07)
Marketing, administrative and technological expenses	(1.30)	(0.93)
Nonrecurring 1986 costs		0.98
Total Cost Related Factors	(2.13)	(1.72)
Other Factors:		
Restructuring — net	(0.24)	(1.01)
Divestitures	(0.26)	(0.13)
Total Other Factors	(0.50)	(1.14)
Operating Income	1.62	0.47
Interest expense	(0.01)	0.19
Interest income	0.03	0.01
Other income — net	(0.02)	(0.87)
Change in income taxes	0.38	0.25
Change in shares outstanding	0.64	0.03
Change in Earnings per Share	\$ 2.64	\$ 0.08

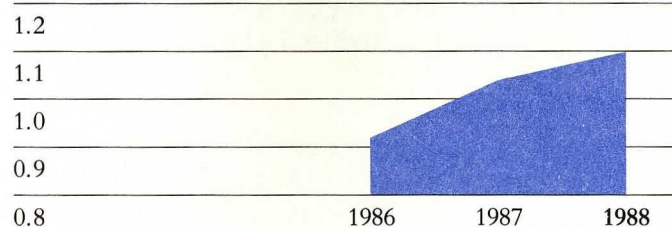
Sales Volume Index (1985 = 1.0)



Selling Price Index (1985 = 1.0)



Raw Material Cost Index (1985 = 1.0)



Operating Unit Segment Data

	Net Sales			Operating Income (Loss)			Research and Development		
	1988	1987	1986	1988	1987	1986	1988	1987	1986
Agricultural Products:									
Crop Chemicals	\$1,377	\$1,178	\$1,067	\$434	\$359	\$318	\$110	\$ 94	\$ 94
Animal Sciences	169	127	86	(10)	(43)	(35)	43	47	41
Chemicals	3,989	3,858	3,548	486	450	613	108	108	105
Electronic Materials	209	185	154	11	(5)	(139)	6	8	15
Fisher Controls	840	749	645	29	26	(66)	19	18	21
NutraSweet	736	722	711	154	145	142	35	31	25
Pharmaceuticals	973	820	665	(62)	(119)	(119)	198	199	177
Biotechnology Product Discovery				(47)	(43)	(41)	47	43	39
Corporate			3	(40)	(36)	(38)	9	9	6
Total consolidated	\$8,293	\$7,639	\$6,879	\$955	\$734	\$635	\$575	\$557	\$523

	Total Assets			Capital Expenditures			Depreciation and Amortization		
	1988	1987	1986	1988	1987	1986	1988	1987	1986
Agricultural Products:									
Crop Chemicals	\$1,001	\$ 918	\$ 939	\$101	\$ 71	\$ 55	\$ 85	\$ 82	\$ 84
Animal Sciences	260	221	217	22	21	33	25	22	21
Chemicals	2,883	2,856	2,704	329	287	244	235	231	236
Electronic Materials	217	234	228	10	11	51	20	17	122
Fisher Controls	682	654	612	25	22	38	37	34	36
NutraSweet	1,484	1,724	1,883	36	31	39	209	206	205
Pharmaceuticals	1,604	1,484	1,394	56	50	53	79	75	67
Biotechnology Product Discovery	67	78	50	7	6	6	11	8	7
Corporate	263	286	242	4	6	1	2	4	2
Total consolidated	\$8,461	\$8,455	\$8,269	\$590	\$505	\$520	\$703	\$679	\$780

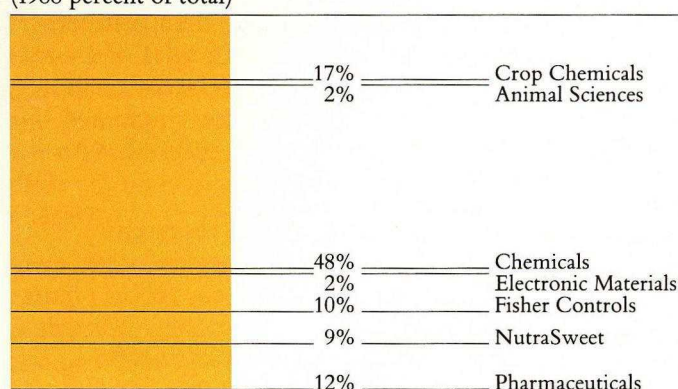
The above data should be read in conjunction with the Segment Information note to the financial statements on pages 41 and 42.

Chemicals operating income was favorably affected by unusual items of \$149 million in 1986 and \$30 million in 1987 from the actions instituted under the 1985 restructuring program. The Electronic Materials operating loss in 1986 included asset impairment costs of \$90 million.

The following describes the principal factors for the operating units' strong overall performance in 1988 and 1987, along with the factors that are expected to affect operating results in 1989.

Net Sales

(1988 percent of total)



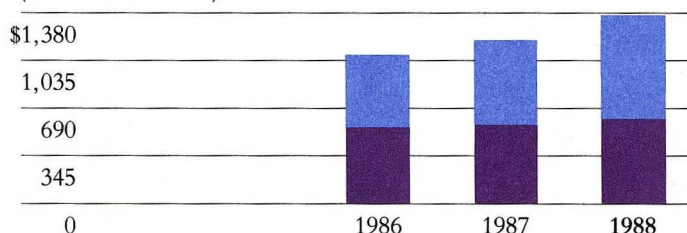
Operating Unit Segment Data (continued)

Crop Chemicals

	1988	1987	1986
Net Sales	\$1,377	\$1,178	\$1,067
Operating Income	434	359	318

The Crop Chemicals operating unit is a leading worldwide producer and marketer of agricultural herbicides, including *Roundup*, *Lasso*, *Avadex* and *Machete* herbicides. More than half of Crop Chemicals net sales are in markets outside the United States.

Crop Chemicals Net Sales
(dollars in millions)



■ U.S. ■ ex-U.S.

Crop Chemicals achieved significant increases in 1988 net sales, up 17 percent, and operating income, up 21 percent. *Roundup* herbicide set a record for sales volume in 1988. Crop Chemicals had significant sales volume gains outside the United States. Operating results also were favorably affected by the translation of ex-U.S. currencies into the U.S. dollar. Price reductions for *Roundup* herbicide, part of a continuing global marketing strategy begun in 1985, facilitated further market expansion. The resulting volume-related gains more than compensated for the lower selling prices. Net sales of *Lasso* herbicide for control of grassy weeds in corn and soybean crops improved in 1988 due to increased planted acreage in the United States coupled with an aggressive marketing program.

Besides herbicides, Crop Chemicals research programs are focused on the discovery and development of fungicides and insecticides, as well as plants genetically engineered to have a resistance to insects and viruses, or tolerance to *Roundup* herbicide. In various stages of research and development are several new herbicides and soybean and cotton plants, which have a resistance to *Roundup* herbicide.

In 1987, Crop Chemicals net sales increased 10 percent and operating income improved 13 percent. The increase was accomplished through innovative marketing programs which increased the

sales volume of *Roundup* herbicide. Both *Roundup* and *Avadex* herbicides had strong demand outside the United States. Lower U.S. planted corn acreage and increased competition contributed to lower *Lasso* herbicide sales and operating income in 1987.

Outlook - Crop Chemicals

The devastating 1988 drought in the United States significantly lowered yields of corn, wheat and soybeans and depleted surplus grain stocks. Plantings of these crops in the United States are expected to increase substantially in 1989 as a result of lower government requirements for idled acres and stronger commodity prices. New applications and expansion of ex-U.S. markets are also expected to grow sales volume in 1989. The acquisition of the *Greensweep* lawn and garden care business in 1988 also is expected to facilitate additional growth in U.S. residential sales. Continuing the *Roundup* herbicide global marketing strategy, price reductions effective in 1989 have been announced in several ex-U.S. markets.

Animal Sciences

	1988	1987	1986
Net Sales	\$169	\$127	\$86
Operating Income (Loss)	(10)	(43)	(35)

The Animal Sciences business focuses on animal nutrition and growth products. The major commercial products are *Alimet* animal feed supplement and *Santoquin* antioxidant.

Animal Sciences had record sales in 1988. Net sales increased 33 percent due to an increase in sales volume of *Alimet* animal feed supplement. The ease of handling *Alimet* versus competitive products and innovative marketing programs were the principal reasons for the record level of sales.

Significant research expenditures continue for bovine somatotropin (BST), a naturally occurring protein produced through biotechnology that enhances the efficiency of milk production in dairy cows, which is awaiting regulatory approval in the United States and market introduction. Monsanto also is developing a porcine somatotropin (PST) which research demonstrates improves the feed efficiency and growth rate of hogs and results in leaner pork.

The increased earnings from the record 1988 sales level and lower manufacturing start-up costs reduced the operating loss significantly. However, the continuing high BST/PST funding resulted in an operating loss.

Operating Unit Segment Data (continued)

Net sales for 1987 increased 48 percent over 1986 as sales volume of *Alimet* animal feed supplement increased significantly. The increase in 1987 research and development expenses and BST manufacturing start-up costs was greater than the effect of the higher profits resulting from the increased sales of *Alimet*.

Outlook - Animal Sciences

BST is awaiting approval by the U.S. Food and Drug Administration. This product is expected to bring significant value to the dairy industry through the reduction of milk production costs. The poultry market that *Alimet* serves is expected to grow as diet trends continue to move toward consumption of white meat. Pricing actions by ex-U.S. competitors may result in *Alimet* selling prices being lower in 1989 to maintain a competitive position.

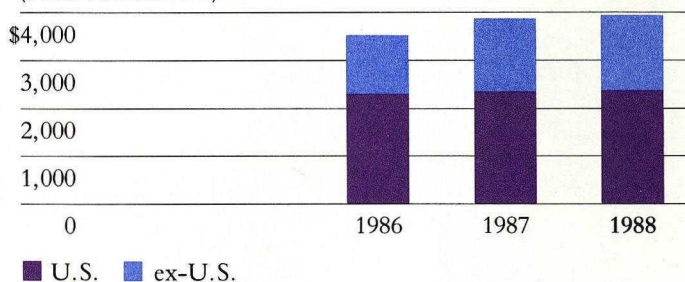
Chemicals

	1988	1987	1986
Net Sales:			
Detergents and phosphates	\$ 513	\$ 494	\$ 536
Engineered products	109	200	205
Man-made fibers	962	950	856
Plastics	887	804	639
Resin products	677	645	584
Rubber chemicals and instruments	417	366	319
Specialty chemicals	424	399	409
Total	\$3,989	\$3,858	\$3,548
Operating Income	486	450	613

The Chemicals unit produces a wide range of chemicals, plastics, fibers and other products listed in the table above. The unit's principal strengths are nylon carpet fiber, high-performance plastics, *Saflex* plastic interlayer, detergents and phosphates, rubber chemicals and maleic anhydride.

Chemicals Net Sales

(dollars in millions)



Net sales increased 3 percent in 1988. However, excluding businesses subsequently divested, 1988 net sales increased 9 percent principally from strong demand across the continuing product lines. Particularly robust were the ex-U.S. markets for most business lines. For continuing product lines, U.S. export sales increased 22 percent and ex-U.S. manufactured sales increased 16 percent. The translation of ex-U.S. financial results into U.S. dollars also had a positive effect. Higher 1988 sales volume and selling prices generated solid income gains. The selling price increases were in response to higher raw material costs. Plant capacity utilization was 83 percent in 1988 versus 80 percent in 1987. This higher plant utilization also contributed to improved 1988 operating income. Overall, operating income in 1988 was up 8 percent.

Because of strong worldwide demand, net sales of plastics were vigorous and increased 10 percent over 1987 in spite of the Australian business divestiture in 1988. *Lustran* ABS thermoplastics and high performance alloys and blends benefited from an increase in worldwide motor vehicle production. The high demand permitted some increases in selling prices, which were necessary to recover escalating raw material costs.

Resin products net sales increased 5 percent in 1988. *Saflex* plastic interlayer, used primarily in automobile windshields, benefited from the high level of worldwide automobile production and expanded use in architectural markets. Net sales of specialty resins, plasticizers and resins for adhesives and paint additives were also strong.

Fibers net sales increased only 1 percent over 1987. However, *Wear-Dated* stain-resistant carpet fibers continued to generate strong consumer acceptance and demand. Advertising and promotional expenses were higher to maximize consumer response to these stain-resistant carpet fiber products introduced in 1987.

In the other Chemicals businesses, specialty chemicals net sales increased 6 percent driven largely by maleic anhydride performance. Led by surfactants and phosphorus derivatives demand, detergents and phosphates net sales increased 4 percent in 1988. Rubber chemicals and instruments 1988 net sales were 14 percent ahead of 1987. Engineered products net sales declined primarily due to the 1987 divestiture of the polyethylene bottle business (net sales of approximately \$60 million in 1987).

Operating Unit Segment Data (continued)

Chemicals research continues to focus primarily on improving the technology and broadening the applications for existing products to meet customers' changing needs. The success of these programs is seen in the commercial strength of Monsanto's improved carpet fibers, maleic anhydride, *Saflex* plastic interlayer, plastic alloys and specialty resins.

Net sales of the Chemicals unit in 1987 increased 9 percent driven by a 33 percent increase in U.S. exported products. Ex-U.S. selling prices were favorably affected by currency translation, while U.S. selling prices decreased. Operating income of \$450 million was down versus \$613 million in 1986. However, operating income in 1986 included \$149 million of restructuring income versus \$30 million in 1987.

Outlook - Chemicals

The Chemicals unit has a solid portfolio of products that provide value to customers. Rationalization of capacity and cost reduction actions have lowered the capacity utilization break-even point. The carpet fiber technology (with "locked-in" stain blockers) is a generation ahead of the competition by applying protection as the fiber is produced. *Saflex* plastic interlayer was 50 years old in 1988 and continues to be an exceptional product. New applications for automotive use are in advanced stages of development and architectural applications continue to expand. Additional ex-U.S. manufacturing capacity for *Saflex* plastic interlayer is under construction to supply the demand from worldwide motor vehicle markets. Other new manufacturing facilities completed in 1988 include a *Santoprene* thermoplastic rubber facility in Brazil. Also, a cooperative agreement to produce and market maleic anhydride in Taiwan has been signed.

Electronic Materials

	1988*	1987	1986
Net Sales	\$209	\$185	\$154
Operating Income (Loss)	11	(5)	(139)

*For the ten-month period January-October.

Monsanto has signed an agreement to sell this business to Huels AG, subject to governmental approvals in the various countries where facilities are located. This approval and the recording of the sale are expected to occur in the first part of 1989. Monsanto

has not reported this business as a discontinued operation in the Statement of Consolidated Income as the effect is immaterial.

The 1988 operating income was a record for Electronic Materials. This strong performance resulted from the growth in worldwide semiconductor demand and greater penetration in ex-U.S. markets. Sales in 1987 increased 20 percent and operating performance improved substantially, moving from an operating loss of \$139 million in 1986 to nearly break-even in 1987. The 1986 results included a \$90 million asset impairment write-down.

Fisher Controls

	1988	1987	1986
Net Sales	\$840	\$749	\$645
Operating Income (Loss)	29	26	(66)

Fisher Controls is a leading worldwide producer of industrial valves and regulators, as well as *PROVOX* electronic process instrumentation and gas separation systems.

Net sales increased 12 percent in 1988 on the strength of customer demand and improved selling prices. Fisher Controls markets began to revive late in 1987 and continued to improve through 1988. In addition, this unit benefited from the favorable currency effect of a weaker U.S. dollar. Operating income increased 12 percent in 1988 despite raw material cost increases for specialty metal castings and electronic components and adverse inventory adjustments in part of the ex-U.S. operations.

Net sales increased 16 percent in 1987 due to sales volume and selling price improvements. Operating income was \$26 million in 1987 versus a \$66 million operating loss in 1986. The 1986 loss resulted principally from depressed sales to the chemical and oil and gas industries and from actions taken late in 1986 to lower future operating costs.

Outlook - Fisher Controls

Fisher Controls business is dependent primarily upon capital expenditures in the chemical, oil and pulp and paper industries. Sophisticated control valves and systems may take months to produce. As a result, booked orders for production is a key indicator for future business performance. Booked orders in the process control business at the end of

Operating Unit Segment Data (continued)

1988 were up 8 percent from the end of 1987. In addition, selling price increases for valve and instrumentation products have been announced to be effective at the beginning of 1989, reflecting higher raw material costs experienced in 1988.

NutraSweet

	1988	1987	1986
Net Sales	\$736	\$722	\$711
Operating Income	154	145	142

The NutraSweet Company manufactures and markets *NutraSweet* brand low-calorie sweetener which is sold worldwide. The company also markets *Equal* low-calorie tabletop sweetener throughout the United States. A new product, *Simplese* all-natural fat substitute, has been announced and is awaiting affirmation of its Generally Recognized As Safe (GRAS) status by the U.S. Food and Drug Administration (FDA) and regulatory authorities in other countries.

Operating income in 1988 increased 6 percent compared to 1987 principally due to production cost reductions and 10 percent higher *NutraSweet* sales volume attributable to the growth of the diet carbonated soft drink market worldwide. While sales volume was higher, net sales increased only 2 percent because of lower worldwide average selling prices. Operating expenses increased as a result of higher marketing costs and expanded technological expenses associated with *Simplese*.

This unit's 1987 net sales and operating income were up slightly from the prior year. Sales volume of *NutraSweet* brand low-calorie sweetener increased 9 percent. Continued strong growth in the United States of diet carbonated soft drinks and further manufacturing cost reductions were countered by the effects of lower worldwide average selling prices, some customer inventory reductions and higher administrative and technological expenses.

Outlook - NutraSweet

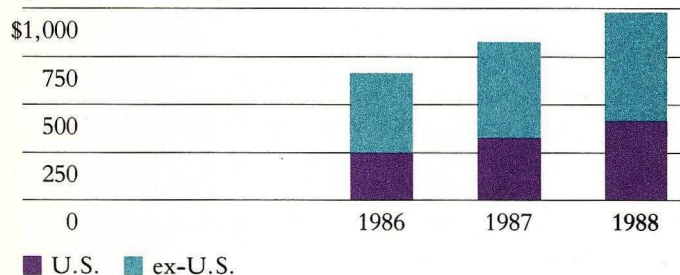
The U.S. diet carbonated soft drink market will continue to be the principal market for *NutraSweet* in 1989 and is expected to grow. Internationally, the company expects strong unit sales growth. However, worldwide average selling prices are expected to continue to decline in response to competition. It also is anticipated that regulatory authorities will allow *Simplese* to be sold in several markets in 1989.

Pharmaceuticals

	1988	1987	1986
Net Sales	\$973	\$820	\$665
Operating Income (Loss)	(62)	(119)	(119)

G.D. Searle & Co. is a research-based, worldwide pharmaceuticals business concentrating on drugs for the treatment of cardiovascular, gastrointestinal, infective and central nervous system diseases. In 1988, cardiovascular products accounted for 56 percent of worldwide net sales. Over half of Searle's net sales were outside the United States.

Pharmaceuticals Net Sales (dollars in millions)



Pharmaceuticals sales growth of 19 percent in 1988 was driven by increasing demand for the *Calan* family of calcium channel blocker products for hypertension (a 79 percent increase) in the United States and Canada. A wide range of products contributed to the 13 percent ex-U.S. sales growth. Several strategically important mergers, joint ventures and restructurings were completed in 1988 to strengthen Searle's presence in the key world markets in Germany, Italy, the United Kingdom and Brazil. As a result of the above factors, the operating loss in 1988 was reduced dramatically (48 percent) from 1987.

Research and development expenses were \$198 million in 1988, level with 1987. This research effort is concentrated on molecular and cell biology and traditional chemical discovery methods. As part of its R&D strategy, Searle has also acted to accelerate the process of bringing new products to the market by actively pursuing various licensing opportunities to complement its in-house product portfolio. Among the many licensing agreements signed by Searle during the past two years, the two having greatest potential for near-term impact are lomefloxacin, a quinolone class anti-infective, and oxaprozin, a new once-a-day non-steroidal anti-inflammatory drug for the treatment of rheumatoid

Operating Unit Segment Data (continued)

arthritis and osteoarthritis. Also, the ongoing collaborative research program with Oxford University in the United Kingdom is focused on developing glycobiological compounds for the treatment of AIDS, arthritis and other diseases. Glycobiology is a newly emerging area of scientific inquiry involving the role of various sugars in a variety of biological processes.

In 1987, Pharmaceuticals sales increased 23 percent, primarily due to strong growth for *Calan* SR. The operating loss in 1987 was the same as 1986 as increased income from higher sales was invested in higher research and development and increased marketing expenses for new product launches.

Outlook - Pharmaceuticals

In 1989, Searle expects further growth for the *Calan* family of products. In December 1988, the FDA approved the marketing of *Cytotec*, an anti-ulcer drug for the prevention and treatment of ulcers that

are often associated with the use of many arthritis medicines. *Cytotec* is already marketed in many ex-U.S. countries and will be introduced in the United States in 1989. *Kerlone*, a new beta blocker for the treatment of high blood pressure, is anticipated to receive U.S. regulatory approval in 1989.

Biotechnology Product Discovery

The Company conducts basic and applied biotechnological research in the life sciences businesses for discovery of new biotechnology-based product opportunities. This research is coordinated with the strategic direction of the life sciences businesses: Crop Chemicals, Animal Sciences and Pharmaceuticals. Discoveries are further developed and commercialized by those businesses. The cost of biotechnology product development effort directly related to Crop Chemicals, Animal Sciences and Pharmaceuticals is included as an expense in those segments.

Geographic Data

	Net Sales to Unaffiliated Customers			Operating Income (Loss)			Total Assets		
	1988	1987	1986	1988	1987	1986	1988	1987	1986
United States	\$5,219	\$4,883	\$4,638	\$638	\$501	\$506	\$6,240	\$6,431	\$6,608
Europe-Africa	1,801	1,537	1,231	245	181	117	1,447	1,256	1,013
Canada	377	329	290	37	31	26	149	116	116
Latin America	304	293	283	27	2	6	242	235	243
Asia-Pacific	592	597	437	74	49	16	478	513	385
Inter-area Eliminations				(26)	6	2	(358)	(382)	(338)
Corporate				(40)	(36)	(38)	263	286	242
Total consolidated	\$8,293	\$7,639	\$6,879	\$955	\$734	\$635	\$8,461	\$8,455	\$8,269

The data above are prepared on an "entity basis," which means that net sales, operating income and assets of a legal entity are assigned to the geographic area where the legal entity is located (e.g., a sale from the United States to Latin America is reported as a United States sale). Inter-area sales between Monsanto entities have been excluded from the above table, but are shown in the Segment Information note to the financial statements on pages 41 and 42. The reported operating income for the ex-U.S. geographic areas does not include the full profitability generated by sales of Monsanto products imported from other locations, principally from the United States.

United States Domestic and Export Sales Increased

Net sales by entities in the United States increased 7 percent over 1987 and operating income increased by 27 percent. The year-to-year improvement in sales and profitability was experienced across all business segments. Crop Chemicals herbicides, *Alimet* animal feed supplement, certain Chemicals products and Pharmaceuticals products, primarily *Calan* SR calcium channel blocker, generated the most pronounced improvement. U.S. export sales volume, especially for Crop Chemicals and Chemicals, expanded during 1988 because of worldwide economic conditions and competitive pricing. Direct sales from the United States to ex-U.S. third party customers were \$502 million, \$408 million and \$279 million for 1988-1986, respectively.

Geographic Data (continued)

Net sales in 1987 increased 5 percent over 1986. Operating income was positively affected by the growth of *Roundup* herbicide and improved profitability of Fisher Controls and Electronic Materials. However, Chemicals unit profit margins were lower. In addition, *Lasso* herbicide experienced lower selling prices and volumes. Operating income in 1986 included \$155 million of restructuring income and a \$90 million write-down of Electronic Materials assets. Operating income in 1987 included \$32 million of restructuring income. Excluding these unusual items, operating income increased 6 percent in 1987.

Europe-Africa Had Record Results

Net sales increased 17 percent in 1988 and operating income was up 35 percent; both were new records. Selling price reductions, expansion of differentiated products and innovative marketing programs produced a significant gain in *Roundup* herbicide sales volume and profit. *Lustran* ABS thermoplastics, *Saflex* plastic interlayer, rubber chemicals and pharmaceutical products also had improved performance in both sales volumes and profits due to strong market demand.

Net sales in 1987 in Europe-Africa improved 25 percent over 1986, while operating income increased 55 percent. Net sales and operating income benefited in 1987 from increased sales volumes of U.S.-produced Chemicals products resold in Europe-Africa and higher Pharmaceuticals and Crop Chemicals net sales. Operating income in 1986 included expenses associated with the fixed cost reduction program of Fisher Controls.

Canada Herbicide Sales Growth Continued

Led by Crop Chemicals, net sales increased 15 percent in 1988 and operating income increased 19 percent. *Roundup* and *Avadex* BW herbicides continued to be the principal products contributing to Canada's improved financial results. Pharmaceuticals had record sales and Fisher Controls sales and operating income rebounded. Sales and operating income continued to benefit from the translation of a stronger Canadian dollar into the U.S. dollar.

Net sales and operating income in 1987 increased 13 percent and 19 percent, respectively, over 1986. Most business segments improved over 1986, led by strong sales volumes of *Roundup* and *Avadex* BW herbicides and Chemicals products. The effect of translating stronger Canadian dollar-denominated operating results into U.S. dollars helped 1987 sales and operating income.

Latin America Improved in All Businesses

Net sales increased 4 percent over 1987 in Latin America and operating income grew significantly. Increases in *Roundup* and *Lasso* herbicides sales volume contributed to the sales and profit improvement. The rubber chemicals business also experienced performance gains. Pharmaceuticals profitability improved with the restructured Brazilian operations.

In Brazil, a *Santoprene* thermoplastic rubber facility was completed and a rubber chemicals raw material plant is under construction. Projects for manufacturing *Saflex* plastic interlayer and *NutraSweet* brand low-calorie sweetener in Brazil also were approved.

Latin American operating income does not include the equity income from Monsanto's joint venture companies in Latin America. Such equity income is reflected in "Other income — net" in the Statement of Consolidated Income.

Latin American sales in 1987 increased 4 percent, but operating income declined. Sales volumes of *Roundup* herbicide, *Lustrex* polystyrene and rubber chemicals improved in 1987, but an unfavorable change in product sales mix coupled with the impact of currency devaluation in Argentina resulted in a year-to-year decline in operating income. In addition, Brazilian import restrictions hampered Pharmaceuticals commercial activities.

Asia-Pacific Markets Prospered

Economic growth in the Asia-Pacific world area continued to escalate. Operating income increased 51 percent in 1988 despite a slight decline in net sales brought about by the sale of the Australian commodity chemicals and plastics businesses early in 1988. The higher 1988 profitability was principally generated from higher Crop Chemicals and Electronic Materials sales. Crop Chemicals volume continued to increase in all major Asia-Pacific countries. Electronic Materials sales benefited from strong semiconductor demand. Solid financial performance was achieved by the Chemicals business, led by plastics and specialty chemicals. The sale of the Australian businesses represented another step in Monsanto's strategy to divest from cyclical, capital-intensive commodity chemicals businesses.

Asia-Pacific net sales and operating income improved 37 percent and 206 percent, respectively, in 1987. Sales and profitability of styrene, phenol and *Lustrex* polystyrene businesses, which were divested in 1988, were particularly strong in Australia. Fisher Controls and Pharmaceuticals also had significant sales and operating income improvements. In addition, sales volume of *Roundup* herbicide was higher in all major Asia-Pacific countries.

Statement of Consolidated Financial Position

(Dollars in millions, except per share)

At December 31,

Assets	1988	1987
Current Assets:		
Cash, time deposits and certificates of deposit	\$ 203	\$ 180
Short-term securities, at cost which approximates market	18	43
Trade receivables, net of allowances of \$28 in 1988 and \$38 in 1987	1,234	1,209
Miscellaneous receivables and prepaid expenses	284	325
Deferred income tax benefit	188	165
Inventories	1,170	1,081
Total Current Assets	3,097	3,003
Intangible Assets , net of accumulated amortization of \$798 in 1988 and \$566 in 1987	1,790	1,953
Investments in Affiliates	205	240
Other Assets	223	183
Property, Plant and Equipment:		
Land	111	112
Buildings	1,122	1,097
Machinery and equipment	5,388	5,242
Construction-in-progress	305	279
Total property, plant and equipment	6,926	6,730
Less accumulated depreciation	3,780	3,654
Net Property, Plant and Equipment	3,146	3,076
Total Assets	\$8,461	\$8,455

Liabilities and Shareowners' Equity

Current Liabilities:		
Accounts payable	\$ 545	\$ 485
Wages	208	175
Income and other taxes	124	101
Miscellaneous accruals	547	500
Short-term debt	556	539
Total Current Liabilities	1,980	1,800
Long-Term Debt	1,408	1,564
Deferred Income Taxes	588	584
Other Liabilities	685	606
Shareowners' Equity:		
Common stock — authorized, 200,000,000 shares, par value \$2; issued, 82,197,097 shares in 1988 and 1987	164	164
Additional contributed capital	874	872
Accumulated currency adjustment	52	100
Reinvested earnings	3,662	3,282
Treasury stock, at cost (13,364,917 shares in 1988 and 8,099,580 shares in 1987)	(952)	(517)
Total Shareowners' Equity	3,800	3,901
Total Liabilities and Shareowners' Equity	\$8,461	\$8,455

The above statement should be read in conjunction with pages 37 through 42 of this report.

Review of Liquidity and Capital Resources

Monsanto's financial position remained strong in 1988. Financial resources were readily available to support existing businesses and fund new business opportunities.

In order to maintain adequate financial flexibility and access to debt markets worldwide, Monsanto management intends to maintain a debt rating in the United States of "A" or equivalent. An important factor in establishing that rating is the interest coverage ratio which improved to 5.5 in 1988 from 4.5 in 1987.

Monsanto utilizes both the domestic and international financial markets for its financing needs and has available various short- and medium-term bank credit facilities, which are discussed in the notes to financial statements (page 39). These credit facilities provide the financing flexibility to take advantage of investment opportunities that may arise and satisfy future funding requirements.

Management believes that a total debt to total capitalization ratio of approximately 35 percent is appropriate. At year-end 1988, that percentage was 34 percent versus 35 percent in 1987.

The current ratio was 1.6 at year-end 1988, compared with 1.7 at year-end 1987. Working capital was \$1,117 million, \$86 million lower than year-end 1987. Trade receivables increased \$25 million primarily because of higher sales levels. Inventories at year-end increased \$89 million from 1987, with a turnover ratio approximating 4 times per year. However, trade accounts payable and accrued liabilities increased \$163 million.

Intangible assets declined due to amortization, principally The NutraSweet Company's aspartame patent. Intangible assets of \$50 million were acquired in G.D. Searle & Co.'s merger of its Italian business with a local firm. Net property, plant and equipment increased in 1988 as capital additions exceeded depreciation, normal retirements and reductions due to divestitures of several businesses.

Other liabilities increased \$79 million principally due to the higher minority interest from G.D. Searle & Co.'s Italian merger.

The Financial Accounting Standards Board has issued new accounting rules that change the method of calculating deferred income taxes. These new rules must be adopted by 1990. The new rules will have no effect on cash flow and, under existing

tax laws, are not expected to have a material effect on Monsanto's financial position or future results of operations.

Monsanto is subject to various laws and governmental regulations concerning employee health, product safety and environmental matters. It can be anticipated that increasingly stringent requirements will be imposed upon Monsanto and the chemical industry. Monsanto is dedicated to a long-term environmental protection program which reduces emissions of hazardous materials into the environment, as well as the remediation of identified existing environmental concerns. Monsanto showed leadership in the industry by announcing its goal to reduce its hazardous air emissions by 90 percent by 1992. Achieving this target will require the development and installation of new technology. The cost to accomplish this target is not expected to affect operating results materially.

In 1988, Monsanto spent \$36 million on environmental capital projects and approximately \$207 million for operation and maintenance of environmental protection facilities. Monsanto is negotiating with various government agencies concerning Superfund clean-up sites. The Company spent \$19 million in 1988 for remediation of old waste disposal sites and expenditures of a similar or greater amount can be expected in future years. Monsanto's liquidity, financial position or results of operations are not expected to be materially affected by the cost of clean-up of Superfund and old waste disposal sites.

Monsanto's commitments and contingencies are described in the notes to financial statements on page 41.

Monsanto continually evaluates risk retention and insurance levels for product liability, property damage and other potential areas of risk. Monsanto devotes significant effort to maintaining and improving safety and internal control programs, which reduce exposure to certain risks. Based on the cost and availability of insurance and the likelihood of a loss occurring, management decides the amount of insurance coverage to purchase from unaffiliated companies and the appropriate amount of risk to retain. This risk includes being insured in the liability area on the "claims made" policy basis. Management believes that the current levels of risk retention are appropriate and are consistent with those of other companies in the various industries in which Monsanto operates.

Key Financial Statistics

	1988	1987
Working Capital (Current assets less current liabilities)	\$1,117	\$1,203
Current Ratio (Current assets divided by current liabilities)	1.6	1.7
Percent of Total Debt to Total Capitalization*	34%	35%

*Total capitalization is the sum of short-term debt, long-term debt and shareowners' equity.

Statement of Consolidated Cash Flow

(Dollars in millions)

Increase (Decrease) in Cash and Cash Equivalents	1988	1987	1986
Operating Activities:			
Net income	\$ 591	\$ 436	\$ 433
Add income tax expense	302	237	203
Income before income taxes	893	673	636
Adjustments to reconcile to Cash Provided by Operations:			
Income tax payments	(235)	(229)	(221)
Items that did not use (provide) cash:			
Depreciation and amortization	703	679	780
Restructuring income — net		(32)	(158)
Other	14	37	(9)
Working capital changes that provided (used) cash:			
Accounts receivable	(46)	(172)	117
Inventories	(136)	(22)	(2)
Accounts payable and accrued liabilities	86	13	(173)
Other	67	(19)	80
Nonoperating gains from asset disposals (before tax)	(42)	(26)	(90)
Cash Provided by Operations	1,304	902	960
Investing Activities:			
Property, plant and equipment purchases	(590)	(505)	(520)
Acquisition and investment payments	(100)	(59)	(29)
Investment and property disposal proceeds	121	75	503
Cash Used in Investing Activities	(569)	(489)	(46)
Financing Activities:			
Net change in short-term financing	53	150	(315)
Long-term debt proceeds	21	26	675
Long-term debt reductions	(167)	(122)	(1,139)
Treasury stock purchases	(457)	(339)	
Dividend payments	(211)	(212)	(199)
Other financing activities	24	33	45
Cash Used in Financing Activities	(737)	(464)	(933)
Decrease in Cash and Cash Equivalents	(2)	(51)	(19)
Cash and Cash Equivalents*:			
Beginning of year	223	274	293
End of year	\$ 221	\$ 223	\$ 274

The above statement should be read in conjunction with pages 37 through 42 of this report.

The effect of exchange rate changes on cash and cash equivalents was not material.

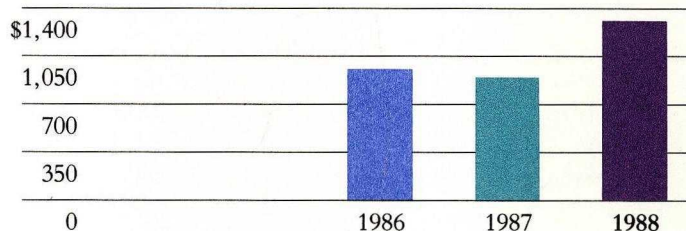
Cash payments for interest (net of amounts capitalized) were \$167 million, \$167 million and \$173 million for the years 1988-1986, respectively.

*Includes cash, time deposits, certificates of deposit and short-term securities.

Review of Cash Flow

Monsanto's cash flow for the three-year period 1986-1988 is shown in the Statement of Consolidated Cash Flow on the preceding page.

Cash Provided by Operations (dollars in millions)



Record Cash Provided by Operations

Cash provided by operations was \$1,304 million in 1988, an increase of 45 percent over 1987 due primarily to the record profit performance. The Chemicals, Crop Chemicals and NutraSweet businesses continued to demonstrate excellent cash generating capabilities.

Major uses of cash included capital expenditures, treasury stock purchases and dividends. Monsanto's capital expenditures of \$590 million in 1988 were focused on improved technology and ex-U.S. capacity expansions. The more significant expenditures were for expanded glyphosate and *Saflex* plastic interlayer capacity and a new detergent product facility.

Monsanto's operations have generated sufficient cash to fund existing businesses, growth-related research and investments. Management expects cash provided by operations supplemented by periodic borrowings to be adequate to fund its future operating requirements.

Stock Purchase Program Continued

In 1987 and 1988, the Company's Board of Directors authorized the purchase of up to 13 million shares of Monsanto common stock. Through December 31, 1988, the Company purchased 9.7 million shares for \$796 million under these authorities. Management believes the treasury stock purchase program represents a sound economic investment for Monsanto's shareowners. In addition, these share purchases favorably affect earnings per share and augment profitability improvements as a means of achieving management's return on equity target.

Dividends Increase for the 16th Consecutive Year

The Company has paid dividends on its common shares without interruption or reduction since 1928 and has increased the dividend in each of the past sixteen years. Dividend payout for 1988 was 16 percent of cash provided by operations and 36 percent of net income. The Company's dividend policy reflects a desired long-term payout percentage based on Monsanto's expectation of future growth and profitability levels. In any individual year, additional consideration is given to expected financial position and results, working and fixed capital needs, scheduled debt repayments and economic conditions, including inflation.

Monsanto's common stock is traded principally on the New York Stock Exchange. The number of shareowners of record as of February 24, 1989, was 64,804 and the high and low common stock prices on that date were \$89 and \$88¹/₄.

Statement of Consolidated Shareowners' Equity

(Dollars in millions, except per share)

	1988	1987	1986
Common Stock:			
Balance, January 1 and December 31	\$ 164	\$ 164	\$ 164
Additional Contributed Capital:			
Balance, January 1	\$ 872	\$ 861	\$ 854
Employee stock plans	2	11	7
Balance, December 31	\$ 874	\$ 872	\$ 861
Accumulated Currency Adjustment:			
Balance, January 1	\$ 100	\$ (98)	\$ (191)
Translation adjustments	(53)	197	103
Income taxes	5	1	(10)
Balance, December 31	\$ 52	\$ 100	\$ (98)
Reinvested Earnings:			
Balance, January 1	\$3,282	\$3,058	\$2,824
Net income	591	436	433
Dividends	(211)	(212)	(199)
Balance, December 31	\$3,662	\$3,282	\$3,058
Treasury Stock:			
Balance, January 1	\$ (517)	\$ (204)	\$ (244)
Shares purchased (5,605,300 and 4,120,100 shares in 1988 and 1987, respectively)	(457)	(339)	
Shares issued under employee stock plans (339,963; 558,528 and 906,536 shares in 1988-1986, respectively)	22	26	40
Balance, December 31	\$ (952)	\$ (517)	\$ (204)

The above statement should be read in conjunction with pages 37 through 42 of this report.

Key Financial Statistics

		1988	1987	1986
Stock Price*	High	\$ 92 ³ / ₈	\$ 100 ¹ / ₄	\$ 81 ¹ / ₂
	Low	73 ¹ / ₂	57	44 ³ / ₄
	Year-end	81 ³ / ₄	83	76 ¹ / ₂
Per Share	Dividends	2.95	2.75	2.575
	Shareowners' Equity	55.21	52.65	48.69
Average Daily Share Trading Volume (thousands of shares)		323	372	269

*Based on daily reported high and low stock prices.

Notes to Financial Statements

Significant Accounting Policies

Monsanto's significant accounting policies are italicized in the following Notes to Financial Statements.

Basis of Consolidation

The consolidated financial statements include the Company and its majority-owned subsidiaries. Intercompany transactions have been eliminated in consolidation. Other companies in which Monsanto has a significant ownership interest (generally greater than 20 percent) are included in "Investments in Affiliates" in the Statement of Consolidated Financial Position, and Monsanto's share of these companies' income or loss is included in "Other income — net" in the Statement of Consolidated Income.

Currency Translation

Most of Monsanto's ex-U.S. entities' financial statements are translated into U.S. dollars using current exchange rates. Unrealized currency adjustments in the Statement of Consolidated Financial Position are accumulated in shareowners' equity. The financial statements of ex-U.S. entities that operate in hyperinflationary economies, including Brazil, Mexico and Argentina, are translated at either current or historical exchange rates, as appropriate. These currency adjustments are included in net income.

Major currencies are the U.S. dollar, British pound sterling and Belgian franc. Other important currencies include the Brazilian cruzado, Canadian dollar, French franc, Japanese yen, Mexican peso and West German mark. Currency restrictions are not expected to have a significant effect on Monsanto's cash flow, liquidity or capital resources.

Principal Acquisitions and Divestitures

Monsanto has signed an agreement to sell the Electronic Materials business, subject to governmental approvals in the countries where that business has facilities. These approvals and the recording of the sale are expected to occur in the first part of 1989 and the income effect will be immaterial.

Monsanto's Australian commodity chemicals and plastics businesses (with net sales of \$60 million for the first quarter of 1988 and \$164 million for the full-year 1987) were sold in March 1988. The gain on this divestiture was not material.

G.D. Searle & Co.'s Italian subsidiary was merged with an Italian pharmaceuticals company in September 1988. This transaction increased intangible assets \$50 million. Pro forma operating results of this acquired business are not presented due to immateriality.

Restructuring

In October 1985, the Company implemented a restructuring and reorganization program. The actions included the withdrawal from selected low-return businesses and production facilities, the sale of certain assets that no longer had strategic importance and reductions in the number of employees.

The 1986 gain included in "Restructuring expense (income) — net" resulted from the sale of product lines that were planned for divestiture under the 1985 restructuring program. The principal sale was product lines of the Texas City, Texas petrochemicals plant that were part of the restructuring program. The impact on 1986 net income from the restructuring gain was \$97 million (after related taxes), or \$1.25 per share.

Depreciation and Amortization

	1988	1987	1986
Depreciation	\$435	\$421	\$423
Amortization of intangible assets	231	225	218
Obsolescence	37	33	139
Total	\$703	\$679	\$780

Property, plant and equipment is recorded at cost. The cost of plant and equipment is depreciated over weighted average periods of 23 years for buildings and 12 years for machinery and equipment, using the straight-line method.

Intangible assets are recorded at cost less accumulated amortization. The components of intangible assets, and their estimated remaining useful lives, were as follows:

	Estimated Remaining Life*	1988	1987
Patents	5	\$ 864	\$1,057
Goodwill	34	653	639
Other intangible assets	22	273	257
Total		\$1,790	\$1,953

*Weighted average, in years, at December 31, 1988.

Patents obtained in a business acquisition are recorded at the present value of estimated future cash flows resulting from patent ownership. The cost of patents is amortized over their legal lives. Goodwill is the cost of acquired businesses in excess of the fair value of their identifiable net assets and is amortized over the estimated periods of benefit (5 to 40 years). The cost of other intangible assets (principally product rights and trademarks) is amortized over their estimated useful lives.

Notes to Financial Statements (continued)

Obsolescence in 1986 included a \$90 million charge (\$46 million after tax, or \$0.59 per share) to write down property, plant and equipment values of the Electronic Materials segment to amounts expected to be recovered from future cash flows.

Inventory Valuation

Inventories are stated at cost or market, whichever is less. Actual cost is used to value raw materials and supplies; standard cost, which approximates actual cost, is used to value finished goods and goods in process. Standard costs include direct labor, raw material and manufacturing overhead based on practical capacity. The cost of 56 percent of all inventories is determined using the last-in, first-out (LIFO) method, generally reflecting the effects of inflation or deflation on cost of goods sold sooner than other inventory cost methods. The cost of other inventories generally is determined using the first-in, first-out (FIFO) method.

The components of inventories were as follows:

	1988	1987
Finished goods	\$ 662	\$ 689
Goods in process	333	261
Raw materials and supplies	545	461
Inventories, at FIFO cost	1,540	1,411
Excess of FIFO over LIFO cost	(370)	(330)
Total	\$1,170	\$1,081

Inventories at FIFO cost approximate current cost.

Income Taxes

The components of income before income taxes were:

	1988	1987	1986
U.S.	\$481	\$422	\$462
Ex-U.S.	412	251	174
Total	\$893	\$673	\$636

The components of income tax expense were:

		1988	1987	1986
Current:	Federal	\$111	\$ 82	\$ 20
	State	18	14	12
	Ex-U.S.	139	72	88
		268	168	120
Deferred:	Federal	31	39	74
	State	1	9	13
	Ex-U.S.	2	21	(4)
		34	69	83
Total		\$302	\$237	\$203

Deferred taxes result from timing differences in the recognition of revenue and expense for tax and financial statement purposes. The source of these timing differences and the tax effect of each were as follows:

	1988	1987	1986
Depreciation and obsolescence	\$ 28	\$ 46	\$(61)
Restructuring program	31	43	161
Employee benefit plans	(12)	15	(10)
Other	(13)	(35)	(7)
Total	\$ 34	\$ 69	\$ 83

Factors causing Monsanto's effective tax rate to differ from the United States federal statutory rate were:

	1988	1987	1986
Federal statutory rate	34%	40%	46%
Higher (lower) ex-U.S. tax rates	—	(1)	1
Investment and other tax credits	—	(1)	(4)
Capital gains benefits	—	(2)	(8)
Benefits attributable to:			
United States export earnings	(2)	(2)	(3)
Puerto Rico operations	(1)	(2)	(3)
Other	3	3	3
Effective income tax rate	34%	35%	32%

Investment tax credits were available in 1986 and earlier years as a reduction of the United States federal income tax liability. Such credits were recorded as a reduction of income tax expense in the year they reduced the United States federal income tax liability. Investment tax credits, net of recapture, were \$15 million for 1986.

Income and remittance taxes have not been recorded on \$499 million of undistributed earnings of subsidiaries, either because any taxes on dividends would be offset substantially by foreign tax credits or because Monsanto intends to indefinitely reinvest those earnings. Income and remittance taxes on these earnings would be approximately \$50 million at December 31, 1988.

Various ex-U.S. subsidiaries have tax loss carryforwards for which no tax benefits have been recorded. These carryforwards totaled \$60 million at December 31, 1988, a substantial portion of which has an unlimited carryforward period.

As mentioned under Review of Liquidity and Capital Resources, Monsanto has not yet adopted Statement of Financial Accounting Standards No. 96, the new income tax accounting standard, which is effective beginning in 1990.

Notes to Financial Statements (continued)

Short-Term Debt and Credit Arrangements

Short-term debt was:

	1988	1987
Notes payable:		
Banks	\$ 79	\$127
Commercial paper	228	157
Bank overdrafts	121	136
Current portion of long-term debt	128	119
Total	\$556	\$539
Maximum amount of notes payable and bank overdrafts outstanding at any month-end	\$588	\$438
Average notes payable and bank overdrafts outstanding	411	335
Weighted average interest rate during the year	9.9%	8.1%
Weighted average interest rate at December 31	7.9%	7.6%

Certain ex-U.S. subsidiaries have aggregate short-term loan facilities of \$277 million, under which loans totaling \$79 million were outstanding at December 31, 1988. Interest on these loans is related to various ex-U.S. bank rates. Monsanto's worldwide unused short-term loan facilities were \$198 million at December 31, 1988.

Long-Term Debt

Long-term debt (exclusive of current maturities) was:

	1988	1987
Industrial development bond obligations, weighted average interest rate of 7½%, due 1990 to 2021	\$ 256	\$ 262
9¾% Eurodollar notes due 1991	101	101
10½% notes due 1992	150	150
9¾% notes due 1996	150	150
8½% sinking fund debentures due 2000	127	127
8¾% sinking fund debentures due 2008	169	169
11¾% sinking fund debentures due 2015	214	225
Other	241	380
Total	\$1,408	\$1,564

Maturities and sinking fund requirements on long-term debt are \$128 million, \$54 million, \$139 million, \$187 million and \$40 million for 1989-1993, respectively.

A \$750 million intermediate-term credit facility expires ratably from 1991 to 1994. There were no borrowings under this facility at December 31, 1988.

The credit facility is used to support the issuance of commercial paper (\$228 million outstanding at December 31, 1988). Interest on amounts borrowed under this agreement would likely be at money market rates determined by competitive bidding. Alternatively, interest may also be at, or at a margin above, the Citibank, N.A. base interest rate, or at a margin above the rates paid on either certificates of deposit or the London Interbank Offered Rate (LIBOR).

Covenants under this credit facility restrict maximum borrowings. It is not anticipated that future borrowings will be limited by these restrictions.

Pension Benefits

Most Monsanto employees are covered by noncontributory pension plans. The components of pension cost were as follows:

	1988	1987	1986
Service cost for benefits earned during the year	\$ 65	\$ 64	\$ 60
Interest cost on projected benefit obligation	223	212	202
Assumed return on plan assets*	(246)	(237)	(208)
Amortization of unrecognized net gain	(38)	(32)	(21)
Total	\$ 4	\$ 7	\$ 33

*Actual return on plan assets was \$340 million in 1988, \$187 million in 1987 and \$458 million in 1986.

Pension benefits are determined based on the employee's years of service and compensation level. Pension plans are funded in accordance with Monsanto's long-range projections of the plans' financial conditions, considering benefits earned and expected to be earned in the future, anticipated future returns on pension plan assets and income tax and other regulations.

The excess of the fair value of plan assets over the projected benefit obligation as of January 1, 1986 for each plan is being amortized over the average expected future service period of employees (ranging generally from 14 to 18 years). The fair value of plan assets was used to calculate the assumed return on plan assets. Pension expense was lower in 1987 compared with 1986 due principally to the effect of favorable investment performance of plan assets in 1986.

Notes to Financial Statements (continued)

Pension Benefits (continued)

Assumptions used for the principal plans were as follows:

	1988	1987	1986
Discount rate	8½%	8½%	8¼%
Assumed long-term rate of return on plan assets	8½	8½	8½
Annual rates of salary increase (for plans that base benefits on final compensation level)	6½	6½	6½

The funded status of Monsanto's pension plans at year-end was:

	1988	1987
Actuarial present value of plan benefits:		
Vested	\$2,202	\$2,124
Nonvested	110	154
Accumulated benefit obligation	2,312	2,278
Effect of projected future salary increases	328	337
Projected benefit obligation	\$2,640	\$2,615
Plan assets at fair value	\$3,169	\$3,118
Excess of plan assets over projected benefit obligation	\$ 529	\$ 503
Less:		
Unrecognized net gain at January 1, 1986	386	422
Subsequent unrecognized net gain	302	257
Accrued pension liability	\$ 159	\$ 176

Projected benefit obligations and plan assets included in the above table for the principal United States plans were approximately \$2,437 million and \$2,838 million, respectively, at December 31, 1988. Plan assets consist principally of common stocks and United States government and corporate obligations. Because the Company's pension plans are well-funded, contributions to the Company's principal plans were neither required nor made in 1988-1986.

For some employee savings plans, employee contributions are matched in part by Monsanto. The 1988-1986 expense recorded for such plans was \$34 million, \$33 million and \$35 million, respectively.

Other Postemployment Benefits

Monsanto provides certain health care and life insurance benefits for retired employees. Substantially all of Monsanto's regular, full-time United States employees and certain employees in other countries may become eligible for these benefits if they reach retirement age while employed by Monsanto.

At December 31, 1988, approximately 28,600 active employees were eligible upon retirement to participate in these programs. In addition, approximately

18,100 individuals retired from active service were eligible to participate in these programs. *These other postemployment benefits are not funded and are expensed as benefits are paid.* The 1988-1986 expense recorded for other postemployment benefits was \$38 million, \$37 million and \$26 million, respectively.

Stock Option Plans

As an incentive to increase shareowner value, key officers and employees have been granted Monsanto stock options under the Company's 1974, 1984 and 1988 Management Incentive Plans and the Searle Monsanto Stock Option Plan (Searle Plan). Information about the status of such stock options is presented below.

		Shares		Price
		Exercisable	Outstanding	per Share
December 31, 1986		1,295,094	2,484,167	\$26.16-\$79.31
1987:	Granted		620,200	66.56- 94.19
	Exercised		(550,559)	26.16- 69.00
	Expired		(28,751)	41.75- 94.19
December 31, 1987		1,203,305	2,525,057	26.16- 94.19
1988:	Granted		1,226,582	75.88- 89.44
	Exercised		(370,451)	26.16- 79.31
	Expired		(67,833)	45.63- 94.19
December 31, 1988		1,319,795	3,313,355	26.16- 94.19

Under the 1988 Management Incentive Plans and the Searle Plan, 3,894,061 shares remain available for grant.

Stock appreciation rights (SARs) have been authorized to be granted to Monsanto officers in tandem with stock options under the Plans, including retroactive grants for unexercised options. SARs may be exercised in lieu of stock options included in the table above. At December 31, 1988, SARs related to stock options for 1,141,296 shares were outstanding, of which 250,702 options were exercisable. During 1988, SARs related to stock options for 536,266 shares were granted and for 108,570 shares were exercised.

Earnings per Share

Earnings per share were computed using the weighted average number of common shares and common share equivalents outstanding each year (71,501,322; 77,498,752 and 77,957,975 in 1988-1986, respectively). Common share equivalents (344,986; 645,527 and 616,178 in 1988-1986, respectively) consist primarily of common stock issuable upon exercise of outstanding stock options. Earnings per share assuming full dilution were not significantly different from the primary amounts.

Capital Stock

At December 31, 1988, there were 7,207,977 common shares reserved for employee stock options.

In January 1986, the Company's Board of Directors declared a dividend to shareowners consisting of one Common Stock Purchase Right on each outstanding share of the Company's common stock. A right will also be issued with each share of the Company's common stock that becomes outstanding prior to the time the rights become exercisable or expire. If a person or group acquires beneficial ownership of 20 percent or more, or announces a tender offer that would result in beneficial ownership of 30 percent or more, of the Company's outstanding common stock, the rights become exercisable and each right will entitle its holder to purchase one share of the Company's common stock for \$150. If Monsanto is acquired in a business combination transaction, each right will entitle its holder to purchase, for \$150, common shares of the acquiring company having a market value of \$300. Alternatively, if a 20 percent holder were to acquire Monsanto by means of a reverse merger in which Monsanto and its stock survive or were to engage in certain "self-dealing" transactions, each right not owned by the 20 percent holder would entitle its holder to purchase, for \$150, common shares of the Company having a market value of \$300. The Company can redeem each right for 5 cents at any time prior to its becoming exercisable. The rights expire in 1996. These rights may cause substantial ownership dilution to a person or group who attempts to acquire the Company without approval of the Company's Board of Directors. The rights should not interfere with a business combination transaction that has been approved by the Board of Directors. As of December 31, 1988, 68,832,180 rights were outstanding.

Commitments and Contingencies

Commitments, principally in connection with uncompleted additions to property, were approximately \$150 million at December 31, 1988. Monsanto was contingently liable as guarantor of bank loans and for discounted customers' receivables totaling approximately \$94 million at December 31, 1988. Future minimum payments under noncancellable operating leases and unconditional inventory purchases are \$73 million; \$66 million; \$62 million; \$57 million and \$56 million for 1989-1993, respectively, and \$196 million thereafter.

Monsanto is a party to a number of lawsuits, which it is vigorously defending, arising in the normal course of business. Certain of these actions seek damages in very large amounts. While the results of litigation cannot be predicted with certainty, management believes, based upon the advice of Company counsel, that the final outcome of such litigation will not have a material adverse effect on Monsanto's consolidated financial position.

Supplemental Data

Supplemental income statement data were as follows:

	1988	1987	1986
Raw material and energy costs	\$2,587	\$2,383	\$2,023
Employee compensation and benefits	2,022	1,955	1,937
Current income and other taxes	527	398	356
Rent expense	115	108	99
Technological expenses:			
Research and development	575	557	523
Engineering, commercial development and patent	73	58	73
Total technological expenses	648	615	596
Interest expense:			
Total interest cost	193	188	215
Less capitalized interest	(19)	(16)	(14)
Net interest expense	174	172	201
Equity in affiliates' income (loss)	(5)	7	12
Currency gains (losses) including equity in affiliates' currency gains and losses	(20)	(11)	8

Segment Information

Certain operating unit segment data and geographic data for 1988-1986 appear on pages 25 and 30 and are integral parts of the accompanying financial statements. The principal product lines included in each operating unit are shown in the operating unit segment data.

Sales between operating units were not significant. Inter-area sales, which are sales between Monsanto locations in different world areas, were made on a market price basis.

Certain corporate expenses, primarily those related to the overall management of Monsanto, were not allocated to the operating units or geographic areas. Corporate assets principally include certain miscellaneous receivables and investments.

Notes to Financial Statements (continued)

Segment Information (continued)

Inter-area sales by entities in each geographic area were:

	Inter-area Sales (Between Monsanto Entities)		
	1988	1987	1986
World area shipped from:			
United States	\$ 855	\$ 624	\$ 527
Europe-Africa	167	103	82
Canada	13	8	4
Latin America	22	12	5
Asia-Pacific	39	35	26
Inter-area Eliminations	(1,096)	(782)	(644)
Total consolidated	\$ -	\$ -	\$ -

Following is a reconciliation of ex-U.S. operating income and total assets to the net income and net assets of consolidated ex-U.S. subsidiaries.

	1988	1987	1986
Operating income	\$ 383	\$ 263	\$ 165
Interest expense	(54)	(52)	(42)
Interest income	45	38	40
Other income — net	38	2	(16)
Income taxes	(141)	(93)	(70)
Net income of consolidated ex-U.S. subsidiaries	\$ 271	\$ 158	\$ 77
Total operating assets	\$ 2,316	\$ 2,120	\$ 1,757
Total liabilities	1,040	801	855
Net assets of consolidated ex-U.S. subsidiaries	\$ 1,276	\$ 1,319	\$ 902

Quarterly Data

		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
Net Sales	1988	\$2,127	\$2,263	\$2,022	\$1,881	\$8,293
	1987	1,866	2,025	1,902	1,846	7,639
Gross Profit	1988	890	977	764	690	3,321
	1987	765	801	684	634	2,884
Operating Income	1988	329	365	187	74	955
	1987	250	251	164	69	734
Net Income	1988	210	220	116	45	591
	1987	138	154	100	44	436
Earnings per Share	1988	2.86	3.04	1.67	0.70	8.27
	1987	1.76	1.95	1.30	0.62	5.63
Dividends per Share	1988	0.70	0.75	0.75	0.75	2.95
	1987	0.65	0.70	0.70	0.70	2.75
Common Stock Price						
1988	High	89¾	89½	92¾	83¾	92¾
	Low	74	75½	73½	75	73½
1987	High	87¾	89¾	99¾	100¼	100¼
	Low	73	77¾	83	57	57

Net sales and net income for each quarter of 1988 were higher than the comparable 1987 quarter. Monsanto's net income is historically higher during the first half of the year attributable primarily to a concentration of the generally more profitable Crop Chemicals sales in the first half of the year.

The only significant unusual item affecting net income was the 1987 restructuring income of \$1 million, \$7 million and \$10 million in the second, third and fourth quarters, respectively.

Financial Summary

(Dollars in millions, except per share)

	1988	1987 ⁽¹⁾	1986 ⁽²⁾	1985 ⁽³⁾	1984
Operating Results					
Net Sales	\$8,293	\$7,639	\$6,879	\$6,747	\$6,691
Operating Income (Loss)	955	734	635	(598)	677
As a Percent of Net Sales	12%	10%	9%	(9)%	10%
Income (Loss) Before Extraordinary Gain	591	436	433	(128)	439
Net Income (Loss)	591	436	433	(98)	439
As a Percent of Net Sales	7%	6%	6%	(1)%	7%
Return on Shareowners' Equity	15%	11%	12%	(3)%	12%
Earnings per Share					
Before Extraordinary Gain	\$ 8.27	\$ 5.63	\$ 5.55	\$ (1.67)	\$ 5.42
Net Income (Loss)	8.27	5.63	5.55	(1.27)	5.42
Year-end Financial Position					
Total Assets	\$8,461	\$8,455	\$8,269	\$8,877	\$6,373
Working Capital	1,117	1,203	1,092	899	1,395
Property, Plant and Equipment					
Gross	\$6,926	\$6,730	\$6,326	\$6,840	\$6,919
Net	3,146	3,076	2,913	3,034	3,374
Long-Term Debt	\$1,408	\$1,564	\$1,630	\$2,087	\$ 824
Shareowners' Equity	3,800	3,901	3,781	3,407	3,634
Current Ratio	1.6	1.7	1.6	1.4	2.2
Percent of Total Debt to Total Capitalization	34%	35%	35%	45%	23%
Other Data					
Property, Plant and Equipment Purchases	\$ 590	\$ 505	\$ 520	\$ 645	\$ 614
Depreciation and Amortization	703	679	780	599	503
Interest Expense	174	172	201	178	100
Research and Development Expenses	575	557	523	470	370
Income Taxes	302	237	203	(170)	268
Cash Provided by Operations	1,304	902	960	535	915
Stock Price					
High	\$ 92 ³ / ₈	\$100 ¹ / ₄	\$ 81 ¹ / ₂	\$ 55 ³ / ₈	\$ 53 ⁷ / ₈
Low	73 ¹ / ₂	57	44 ³ / ₄	40 ⁵ / ₈	40 ⁵ / ₈
Year-end	81 ³ / ₄	83	76 ¹ / ₂	47 ³ / ₄	44
Price/Earnings Ratio on Year-end Stock Price	10	15	14	—	8
Per Share					
Dividends	\$ 2.95	\$ 2.75	\$2.575	\$ 2.45	\$ 2.25
Shareowners' Equity	55.21	52.65	48.69	44.38	46.43
Shareowners (year-end)	66,066	68,032	70,367	72,081	71,343
Shares Outstanding (year-end, in millions)	69	74	78	77	78
Employees (year-end)	45,635	49,734	51,703	56,103	50,754

(1) Net income for 1987 includes net restructuring income of \$18 million (\$0.24 per share).

(2) Net income for 1986 includes \$85 million (\$1.10 per share) of net gains, principally from the sale of the Texas City, Texas petrochemicals plant and related assets, partially offset by the Electronic Materials asset impairment write-down. In addition, net income was increased \$25 million (\$0.32 per share) from adopting the requirements of Statement of Financial Accounting Standards No. 87, "Employers' Accounting for Pensions."

(3) Net loss for 1985 includes net restructuring expense of \$542 million (\$7.04 per share), the gain from the sale of the oil and gas operations of \$201 million (\$2.61 per share) and an extraordinary gain of \$30 million (\$0.40 per share) from repayment of debt.

Monsanto's Board of Directors

Monsanto's shareowners are represented by a Board of Directors drawn from diverse backgrounds and experiences, including business management, university administration, government service, scholarship and teaching, military command and other functions in fields such as manufacturing, banking, insurance, public utilities, construction and technology.

This diversity of experience and knowledge is critical to guiding a company that sells to a broad range of markets in more than 100 countries.

Monsanto's board represents the interests of all stake holders — customers, neighbors and employees, as well as shareowners. This requires independence and objectivity, and for that reason, outside directors predominate. Currently, 13 of the 15 members of the board are outside directors.

Monsanto's Advisory Directors

While it is essential to have the breadth of experience and the independent objectivity of a board composed mainly of outside directors, board decisions should also have the benefit of an intimate and detailed knowledge of the Company's ongoing operations. For that reason, six of Monsanto's senior executives serve as non-voting advisory directors.



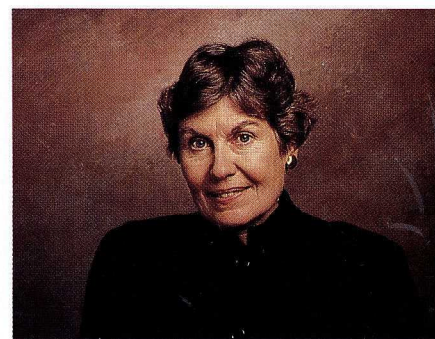
Board of Directors



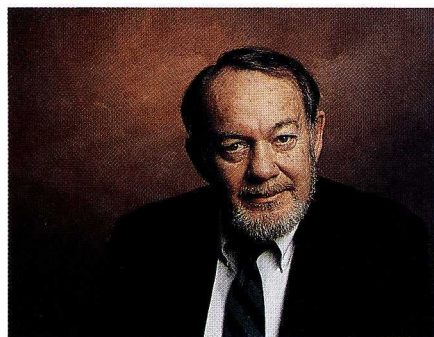
Richard J. Mahoney
St. Louis
Chairman and Chief Executive Officer,
Monsanto Company
Age: 55
Monsanto Director: 10 years



Marguerite Ross Barnett, Ph.D.
St. Louis
Chancellor,
University of Missouri-St. Louis
Age: 46
Monsanto Director: 1 year



Joan T. Bok
Westborough, Massachusetts
Chairman, New England Electric System
Age: 59
Monsanto Director: 2 years



Donald C. Carroll, Ph.D.
King of Prussia, Pennsylvania
Chairman, Schulco, Inc.;
Retired Dean, The Wharton School,
University of Pennsylvania
Age: 58
Monsanto Director: 14 years



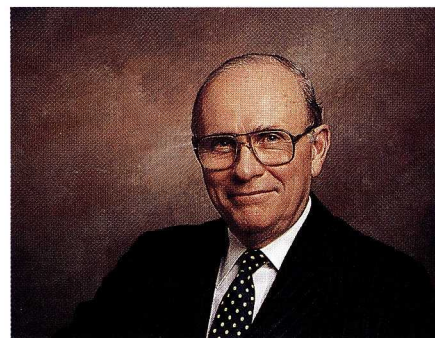
C. Raymond Dahl
San Francisco
Retired Chairman and Chief Executive
Officer, Crown Zellerbach Corporation
Age: 67
Monsanto Director: 11 years



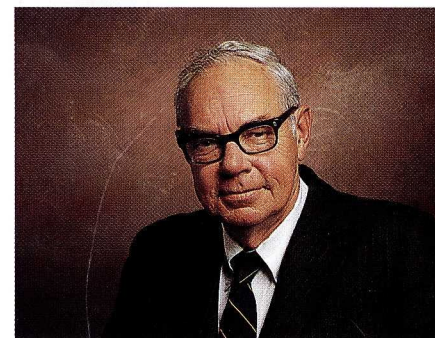
Richard I. Fricke
Montpelier, Vermont
Chairman, Executive Committee,
National Life Insurance Company
Age: 66
Monsanto Director: 14 years



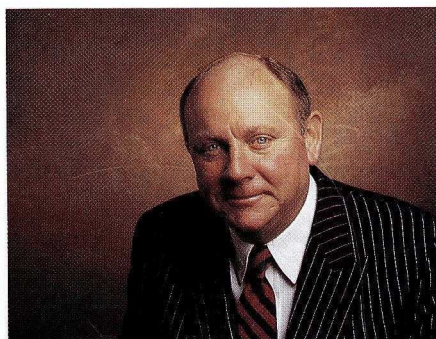
John W. Hanley
Palm City, Florida
Chairman, Hanley Hazelden Center;
Retired Chairman and Chief Executive
Officer, Monsanto Company
Age: 67
Monsanto Director: 16 years



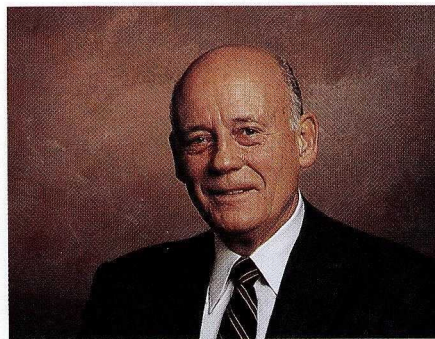
Earle H. Harbison, Jr.
St. Louis
President and Chief Operating Officer,
Monsanto Company
Age: 60
Monsanto Director: 3 years



Robert M. Heyssel, M.D.
Baltimore
President and Chief Executive Officer,
The Johns Hopkins Health System and
The Johns Hopkins Hospital
Age: 60
Monsanto Director: less than 1 year



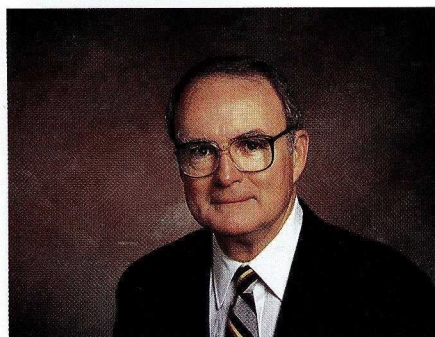
Howard M. Love
Pittsburgh
Chairman and Chief Executive Officer,
National Intergroup, Inc.
Age: 58
Monsanto Director: 11 years



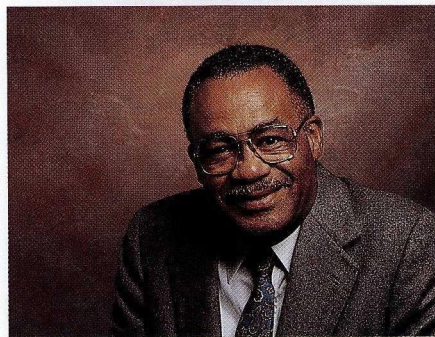
Buck Mickel
Greenville, South Carolina
Chairman and Chief Executive Officer,
R.S.I. Corp.; Retired Vice Chairman,
Fluor Corp.; Chairman, Daniel
International Corp., a Fluor subsidiary
Age: 63
Monsanto Director: 14 years



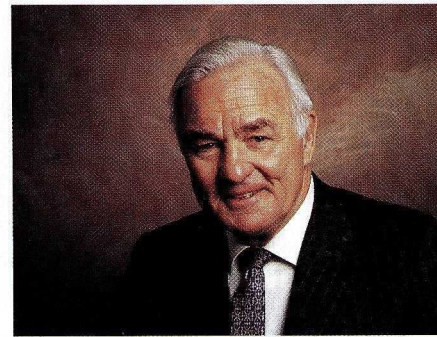
John S. Reed
New York
Chairman, Citicorp and Citibank, N.A.
Age: 50
Monsanto Director: 4 years



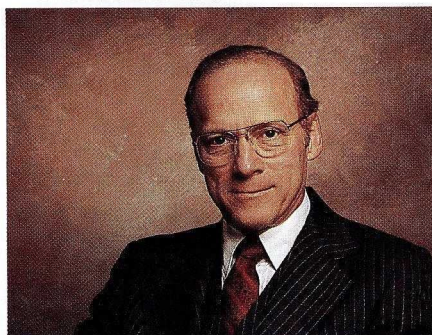
William D. Ruckelshaus
Houston
Chairman and Chief Executive Officer,
Browning-Ferris Industries, Inc.;
Former Administrator,
U.S. Environmental Protection Agency
Age: 56
Monsanto Director: 4 years



John B. Slaughter, Ph.D.
Los Angeles
President, Occidental College;
Former Director, National
Science Foundation
Age: 54
Monsanto Director: 6 years

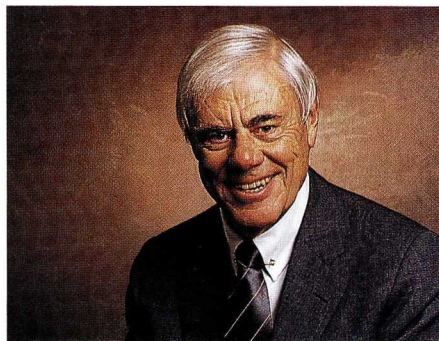


Admiral Stansfield Turner
(U.S. Navy, Retired)
McLean, Virginia
Lecturer and Writer; Former Director,
U.S. Central Intelligence and Central
Intelligence Agency
Age: 65
Monsanto Director: 8 years



Richard W. Duesenberg
Senior Vice President,
General Counsel and Secretary,
Monsanto Company
Age: 58

Advisory Directors



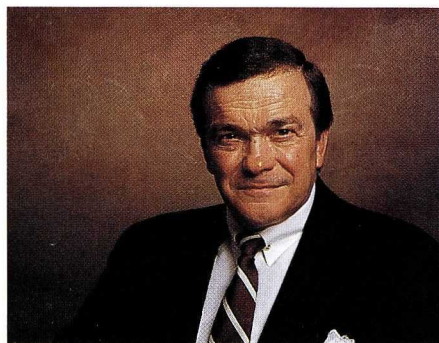
Robert L. Berra
St. Louis
Senior Vice President, Administration,
Monsanto Company
Age: 64
Advisory Director: 7 years



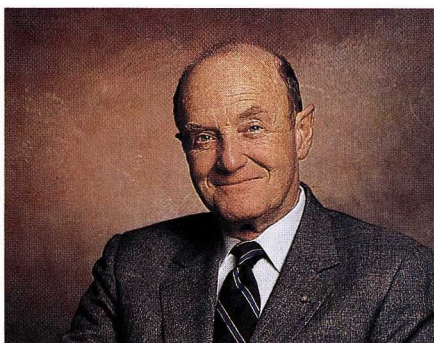
Harold J. Corbett
St. Louis
Senior Vice President, Environment,
Safety & Health,
Monsanto Company
Age: 61
Advisory Director: 4 years



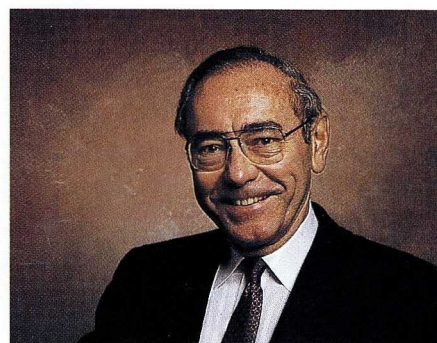
Robert G. Potter
St. Louis
Group Vice President,
Monsanto Company;
President, Monsanto Chemical Company
Age: 49
Advisory Director: 3 years



Nicholas L. Reding
St. Louis
Executive Vice President, Monsanto
Company; President, Monsanto
Agricultural Company
Age: 54
Advisory Director: 7 years



Howard A. Schneiderman, Ph.D.
St. Louis
Senior Vice President,
Research & Development,
Monsanto Company
Age: 62
Advisory Director: 7 years



Francis A. Stroble
St. Louis
Senior Vice President and
Chief Financial Officer,
Monsanto Company
Age: 58
Advisory Director: 7 years

Committees of the Board

Audit Committee

Buck Mickel, Chairman
Joan T. Bok
Robert M. Heyssel, M.D.
William D. Ruckelshaus
John B. Slaughter, Ph.D.

Corporate Social Responsibility Committee

Admiral Stansfield Turner, Chairman
Joan T. Bok
William D. Ruckelshaus
John B. Slaughter, Ph.D.

Executive Committee

John W. Hanley, Chairman
Marguerite Ross Barnett, Ph.D.
Earle H. Harbison, Jr.
Richard J. Mahoney

Executive Compensation and Development Committee

Howard H. Love, Chairman
Richard I. Fricke
John W. Hanley
Buck Mickel

Finance Committee

Donald C. Carroll, Ph.D., Chairman
Marguerite Ross Barnett, Ph.D.
C. Raymond Dahl
John W. Hanley
Richard J. Mahoney
John S. Reed

Nominating Committee

Buck Mickel, Chairman
C. Raymond Dahl
Howard M. Love

Pension and Savings Funds Committee

Richard I. Fricke, Chairman
Donald C. Carroll, Ph.D.
Earle H. Harbison, Jr.
Admiral Stansfield Turner

Officers

Chairman and Chief Executive Officer

Richard J. Mahoney

President and Chief Operating Officer

Earle H. Harbison, Jr.

Executive Vice President

Nicholas L. Reding

Senior Vice Presidents

Robert L. Berra
Harold J. Corbett
Howard A. Schneiderman, Ph.D.

Senior Vice President and Chief Financial Officer

Francis A. Stroble

Senior Vice President, Secretary and General Counsel

Richard W. Duesenberg

Group Vice President

Robert G. Potter

Vice Presidents

Earl N. Brasfield
Leonard A. Cohn
A. Nicholas Filippello, Ph.D.
S. Allen Heininger, Ph.D.
Martin J. Kallen
Thomas H. Lafferre
Philip Needleman, Ph.D.
Richard A. Overton
James H. Senger
David L. Sliney
Virginia V. Weldon, M.D.

Vice President, Finance

Lawrence B. Skatoff

Vice President and Controller

B. Clare Harris

Vice President and Treasurer

Juanita H. Hinshaw

Shareowner Information

Annual Meeting

The next annual meeting of the shareowners of Monsanto Company will be held at 1:45 p.m., Friday, April 28, 1989, in K Building at the Company's World Headquarters, 800 N. Lindbergh Blvd., St. Louis, Missouri. A formal notice of the meeting, together with a proxy statement, is being mailed to each shareowner.

10-K Report,

Corporate Data Book and Investor News

A copy of Monsanto Company's 1988 Form 10-K Report filed with the Securities and Exchange Commission; 1988 Corporate Data Book, which contains additional information relating to Monsanto; and Investor News can be obtained by writing to:

Investor Relations Department

Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, Missouri 63167

Stock Symbol — MTC

Stock Exchanges/Bourses

United States:	Europe:	
New York	Amsterdam	London
Chicago (options)	Brussels	Paris
	Frankfurt	Zurich
	Geneva	

Transfer Agent and Registrar

The First National Bank of Boston
Box 644
Boston, Massachusetts 02102

Monsanto Company

800 North Lindbergh Boulevard

St. Louis, Missouri 63167

Attachment D: Articles on Incorporation & By-Laws of Monsanto
Company

**CERTIFICATE OF INCORPORATION
OF
MONSANTO COMPANY**

ARTICLE I: NAME

The name of the Corporation shall be Monsanto Company.

ARTICLE II: PRINCIPAL OFFICE AND AGENT

The principal office of the Corporation in the State of Delaware is located at Corporation Trust Center, 1209 Orange Street in the City of Wilmington, County of New Castle, and the name and address of its resident agent is The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware.

ARTICLE III: OBJECTS AND PURPOSES

The nature of the business of the Corporation or objects or purposes proposed to be transacted, promoted or carried on by the Corporation are as follows:

To manufacture, compound, refine, buy, sell and in every other way deal in the following: chemicals and allied products, petroleum, electronics, nucleonics, textiles and compounds and products of all types produced from any of the foregoing, either alone or in conjunction with other materials; to conduct scientific and technological research; and to perform other activities and functions related to any of the foregoing.

To refine, market, distribute and transport crude oil, or petroleum and all of its products; to locate, purchase, lease, sublease, develop, or otherwise acquire, and to sell, mortgage or otherwise dispose of, lands containing or believed to contain petroleum, oil, natural gas, and any other mineral, whether similar or dissimilar, or any one or more of them, and to drill or prospect for or produce the same; to purchase, lease, or otherwise acquire, and to sell, mortgage or otherwise dispose of, developed or producing oil, gas and other mineral properties or the products of such oil, gas and other minerals; to purchase, produce, refine, sell and distribute petroleum, gas and other minerals, and all of the products and by-products thereof; to buy, sell or otherwise dispose of, and manufacture all kinds of illuminating, burning and heating oils, and gasoline, naphtha, lubricants, greases, waxes and all other products and by-products of petroleum; to act as broker or agent for others in all of said acts.

To construct, build, purchase, acquire, own, equip, maintain, operate, mortgage, or create liens upon, turn to account, lease, sell, convey or otherwise dispose of, any and all real estate, houses, factories, refineries, mills, smelters, buildings or construction of any nature, plants, manufactories, machinery works, tanks, tank cars, reservoirs, docks, piers, wharves, bulkheads, heat, light and power installations, roads, trams, railroads, spur tracks, loading racks, ditches, flumes, steamboats, vessels, pipelines, pumping stations and any other means or methods of land or water transportation, bridges, canals, storage works, water works and appurtenances, appliances and conveniences thereto of every kind and character whatsoever, to the extent that the same are or may be authorized by the statutes under which this Corporation is incorporated and by the laws of any jurisdiction wherein any such works are located.

To manufacture, refine, reduce, treat, separate, convert, store, transport, buy, sell, distribute, trade and deal in, and otherwise turn to account, all grades and kinds of asphaltum, petroleum and petroleum distillates, natural and artificial gas, casinghead gasoline, sulphur, paints, oils, dyes, varnishes, carbon and hydrocarbon products and all other substances of every nature whatsoever, whether the same be by-products of the business specified herein, or otherwise, and whether the same be in crude or in manufactured or refined forms, which the Corporation may advantageously manufacture, trade, or otherwise deal in, in connection with the conduct of the business as specified herein.

To design, construct, build, purchase, equip, own, control, operate, maintain, sell, lease and otherwise acquire or dispose of filling stations of every kind, nature and description, and in connection therewith to purchase, sell, vend, distribute and generally deal in and with, either at wholesale or retail, or both, gasoline, kerosene, fuel oil, lubricating oils, greases and automobile supplies and accessories of all kinds.

To manufacture fuel, power producing, illuminating, and all other kinds of gas from coal, petroleum, maltha, asphaltum and from any other substances of any nature from which gas may be produced either under any existing process or any process hereafter discovered, and to supply the same for fuel, power, lighting and any and all other purposes of every nature whatsoever both to public and private consumers.

To acquire, own and operate such machinery, apparatus and appliances as may be necessary, proper or incidental to the mining, production and development of lands for petroleum, oil, natural gas and other minerals, or for any of the purposes for which this Corporation is organized.

To manufacture, purchase or otherwise acquire, own, mortgage, pledge, sell, assign and transfer, or otherwise dispose of, to invest, trade, deal in and deal with goods, wares and merchandise and real and personal property of every class and description.

To acquire, and pay for in cash, stock or bonds of this Corporation or otherwise, the good will, rights, assets and property, and to undertake or assume the whole or any part of the obligations or liabilities of any person, firm, association or corporation.

To acquire, hold, use, sell, assign, lease, grant licenses in respect of, mortgage or otherwise dispose of, letters patent of the United States or any foreign country, patent rights, licenses and privileges, inventions, improvements and processes, copyrights, trade marks and trade names, relating to or useful in connection with any business of this Corporation.

To guarantee, purchase, hold, sell, assign, transfer, mortgage, pledge or otherwise dispose of shares of the capital stock of, or any bonds, securities or evidences of indebtedness created by any other corporation or corporations organized under the laws of this state or any other state, country, nation or government, and while the owner thereof to exercise all the rights, powers and privileges of ownership, including the right to vote thereon.

To enter into, make and perform contracts of every kind and description with any person, firm, association, corporation, municipality, county, state, body politic or government or colony or dependency thereof.

To borrow or raise moneys for any of the purposes of the Corporation and, from time to time, without limit as to amount, to draw, make, accept, endorse, execute and issue promissory notes, drafts, bills of exchange, warrants, bonds, debentures and other negotiable or non-negotiable instruments and evidences of indebtedness, and to secure the payment of any thereof and of the interest thereon by mortgage upon or pledge, conveyance or assignment in trust of the whole or any part of the property of the Corporation, whether at the time owned, or thereafter acquired, and to sell, pledge or otherwise dispose of such bonds or other obligations of the Corporation for its corporate purposes.

To purchase, hold, sell, and transfer the shares of its own capital stock; provided it shall not use its funds or property for the purchase of its own shares of capital stock when such use would cause any impairment of its capital except as otherwise permitted by law, and provided further that shares of its own capital stock belonging to it shall not be voted upon directly or indirectly.

To make donations for the public welfare or for charitable, scientific or educational purposes.

To have one or more offices, to carry on all or any of its operations and business and without restriction or limit as to amount to purchase or otherwise acquire, hold, own, mortgage, sell, convey, or otherwise dispose of real and personal property of every class and description in any of the States, Districts, Territories or Colonies of the United States, and in any and all foreign countries, subject to the laws of such State, District, Territory, Colony or Country.

In general, to carry on the foregoing or any other business in connection with the foregoing, directly in the name of this Corporation or indirectly through subsidiaries or affiliates, and to have and exercise all the powers conferred by the laws of Delaware upon corporations formed under the act herein referred to, and to do any or all of the things hereinbefore set forth to the same extent as natural persons might or could do.

The objects and purposes specified in the foregoing clauses shall, except where otherwise expressed, be in nowise limited or restricted by reference to, or inference from, the terms of any other clause in this Certificate of Incorporation, but the objects and purposes specified in each of the foregoing clauses of this article shall be regarded as independent objects and purposes.

ARTICLE IV: CAPITAL STOCK

The total number of shares of all classes of stock which the Corporation shall have authority to issue is Two Hundred Ten Million (210,000,000) shares, to be divided into two classes consisting of (a) Ten Million (10,000,000) shares of preferred stock without par value (hereinafter designated "Preferred Stock"), and (b) Two Hundred Million (200,000,000) shares of common stock of par value of \$2 per share (hereinafter designated "Common Stock").

Section I

Preferred Stock

The Preferred Stock may be issued from time to time in one or more series with such distinctive serial designations, at such price or prices and for such other consideration as

may be fixed by the Board of Directors. The Preferred Stock of all series shall be in all respects entitled to the same preferences, rights and privileges and subject to the same qualifications, limitations and restrictions, except that different series of Preferred Stock may vary with respect to those provisions as shall be determined and fixed by the Board of Directors as hereinafter provided in this Section I. All the shares of any one series shall be alike in every particular. In no event shall any share of any series of Preferred Stock be entitled to more than one vote.

The Board of Directors is hereby expressly empowered, subject to the other provisions of this Article IV, to determine and fix by resolution or resolutions providing for the issuance of such series:

- (a) The number of shares to constitute each such series and the designation thereof;
- (b) The voting powers, full, limited or contingent, if any, to which holders of shares of any series of Preferred Stock shall be entitled;
- (c) The dividend rate or rates, the conditions and dates upon which such dividends shall be payable, the relation which such dividends shall bear to the dividends payable on any other class or classes or series of stock, and whether such dividends shall be cumulative or non-cumulative;
- (d) Whether or not the shares of such series shall be redeemable and, if redeemable, the redemption price and the terms and conditions thereof;
- (e) The amount, if any, which the shares of any such series shall be entitled to receive before any distribution or payment shall be made to holders of the Common Stock, in the event of any liquidation, dissolution or winding up of the affairs of the Corporation, whether voluntary or involuntary, or of any proceedings resulting in any distribution of all, or substantially all, of its assets to its stockholders; provided, however, that the sale of all, or substantially all, of the property and assets of the Corporation to, or the merger or consolidation of the Corporation into or with, any other company shall not be deemed to be a liquidation, dissolution or winding up within the meaning of this subdivision (e);
- (f) Whether or not the shares of such series shall be subject to the operation of retirement or sinking funds to be applied to the purchase or redemption of such shares and, if such funds are established, the annual amount thereof and the terms and provisions relative to the operation thereof;
- (g) Whether or not the shares of such series shall be convertible into, or exchangeable for, shares of any other class or classes or of any other series of the same or any other class of stock of the Corporation and, if convertible or exchangeable, the conversion price or prices or rate or rates of conversion or exchange and such other terms and conditions of conversion or exchange as shall be stated in said resolution or resolutions; and
- (h) Such other designations, preferences and relative, participating, optional or other special rights and qualifications, limitations or restrictions thereof as it may deem advisable and as shall be stated in said resolution or resolutions.

Section II

Provisions Applicable to All Classes of Stock

Each holder of Common Stock shall have one vote on all matters voted upon by stockholders for each share of such stock held by him. Except as otherwise expressly provided by law or by the Board of Directors pursuant to Section I of this Article IV, the holders of Common Stock shall have the sole voting power. No holder of any of the shares of the capital stock of the Corporation shall be entitled as of right to purchase or subscribe for any unissued or reacquired stock of any class, or any additional shares of any class to be issued by reason of any increase of any class of the authorized capital stock of the Corporation, or any securities convertible into stock of any class, but any such unissued or reacquired stock or such additional authorized issue of any stock or issue of convertible securities may be issued and disposed of pursuant to resolution of the Board of Directors to such persons, firms, corporations or associations, and upon such terms as may be deemed advisable by the Board of Directors in the exercise of its discretion.

If it seems desirable so to do, the Board of Directors of the Corporation may from time to time issue scrip for fractional shares of stock. Such scrip shall not confer upon the holder thereof any right to dividends or any voting or other rights of a stockholder of the Corporation; but the Corporation shall from time to time, within such time as the Board of Directors may determine, or without limit of time if the Board of Directors so determines, issue one or more whole shares of stock upon the surrender of scrip for fractional shares aggregating the number of whole shares issuable in respect of the scrip so surrendered, provided that the scrip so surrendered shall be properly endorsed for transfer if in registered form.

The scrip may also, at the option of the Board of Directors, provide that at the option of the Board of Directors there may be sold by the Corporation at public or private sale at any time on or after any determined date, in such manner and on such terms as the Board of Directors may in its absolute discretion determine, the number of shares of stock of the Corporation in respect of which such scrip certificates are then outstanding, and thereafter and until an expiration date fixed by the Board of Directors the bearers of such scrip certificates, upon surrender thereof at the office or agency of the Corporation, shall be entitled to receive their proper proportion of the net proceeds of such sale but without interest, and on and after the date of such sale shall be entitled to no other rights in respect of such scrip certificates.

The Board of Directors shall have power at any time or from time to time (without any action by the stockholders of the Corporation) to create and issue, whether or not in connection with the issue and sale of any shares of stock or other securities of the Corporation, rights or options entitling the holders thereof to purchase from the Corporation any shares of its capital stock of any class or classes or of any series of any class or classes, such rights or options to be evidenced by or in such instrument or instruments as shall be approved by the Board of Directors. The terms upon which, the time or times (which may be limited or unlimited in duration), at or within which and the price or prices at which any such shares may be purchased from the Corporation upon the exercise of any such right or option, shall be such as shall be fixed and stated in the resolution or resolutions adopted by the Board of Directors providing for the creation and issue of such rights or options, and, in every case, set forth or incorporated by reference in the instrument or instruments evidencing such rights or options. In the absence of actual fraud in the transaction, the judgment of the Board of Directors as to the consideration for the issuance of such rights or options and the sufficiency thereof shall be conclusive.

Shares of capital stock of the Corporation of any class or classes hereby or hereafter authorized, and any rights or options entitling the holders thereof to purchase from the Corporation any shares of its capital stock of any class or classes or of any series of any class or classes, may be issued by the Corporation from time to time for such consideration (but if the same be par value stock then at not less than the par value thereof) as may be fixed from time to time by the Board of Directors. The Board of Directors shall have authority, as provided by statute, to determine that only a part of the consideration which shall be received by the Corporation for any of the shares of its capital stock which it shall issue from time to time shall be capital.

The Corporation shall be entitled to treat the person in whose name any share, right or option is registered as the owner thereof for all purposes, and shall not be bound to recognize any equitable or other claim to or interest in such share, right or option on the part of any other person, whether or not the Corporation shall have notice thereof, save as may be expressly provided by the laws of the State of Delaware.

ARTICLE V: CAPITAL

The amount of capital with which the Corporation will commence business is One Thousand Dollars (\$1,000.00).

ARTICLE VI: DURATION

The Corporation is to have perpetual existence.

ARTICLE VII: LIABILITY OF STOCKHOLDERS

The private property of the stockholders of the Corporation shall not be subject to the payment of corporate debts to any extent whatever.

ARTICLE VIII: DIRECTORS

The number of directors of the Corporation which shall constitute the whole Board shall be such as from time to time shall be fixed by or in the manner provided in the by-laws, and such number may be altered from time to time in the manner provided in such by-laws, or by amendment thereof, adopted by the Board of Directors or by the stockholders in the manner provided therein, but such number shall in no case be less than three. Vacancies caused by an increase in the number of directors or otherwise, may be filled by the Board of Directors in the manner provided in the by-laws. Directors need not be stockholders. Any director may be removed at any time with or without cause upon the affirmative vote of the holders of a majority of the stock of the Corporation at any time entitled to vote for directors.

ARTICLE IX: LIABILITY OF DIRECTORS

A director of this Corporation shall not be liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except to the extent such exemption from liability or limitation thereof is not permitted under the Delaware General Corporation Law as the same exists or may hereafter be amended. Any repeal or modification of the foregoing provisions of this Article IX shall not adversely affect any right or protection of a director of the Corporation existing hereunder with respect to any act or omission occurring prior to or at the time of such repeal or modification.

ARTICLE X: POWERS OF BOARD OF DIRECTORS

In furtherance, and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation is expressly authorized:

To make, alter or repeal the by-laws of the Corporation.

To authorize and cause to be executed mortgages and liens upon the real and personal property of the Corporation.

To set apart out of any of the funds of the Corporation available for dividends a reserve or reserves for any proper purpose or to abolish any such reserve in the manner in which it was created.

By resolution or resolutions, passed by a majority of the whole Board, to designate one or more committees, each committee to consist of two or more of the directors of the Corporation, which, to the extent provided in said resolution or resolutions or in the by-laws of the Corporation, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the Corporation, and may have power to authorize the seal of the Corporation to be affixed to all papers which may require it. Such committee or committees shall have such name or names as may be stated in the by-laws of the Corporation, or as may be determined from time to time by resolution adopted by the Board of Directors.

When and as authorized by the affirmative vote of the holders of a majority of the stock issued and outstanding having voting power given at a stockholders' meeting duly called for that purpose, or when authorized by the written consent of the holders of a majority of the voting stock issued and outstanding, the Board of Directors shall have power and authority to sell, lease or exchange all of the property and assets of the Corporation, including its good will and its corporate franchises, upon such terms and conditions and for such consideration, which may be in whole or in part shares of stock in, and/or other securities of, any other corporation or corporations, as the Board of Directors shall deem expedient and for the best interests of the Corporation.

The Corporation may in its by-laws confer powers upon its Board of Directors in addition to the foregoing, and in addition to the powers and authorities expressly conferred upon it by statute.

A director and a member of any committee designated by the Board of Directors shall, in the performance of his duties, be fully protected in relying in good faith upon the books of account or reports made to the Corporation by any of its officials, or by an independent certified public accountant, or by an appraiser selected with reasonable care by the Board of Directors or by any committee thereof, or in relying in good faith upon other records of the Corporation.

No contract or other transaction of the Corporation shall be affected by the fact that any of the directors of the Corporation are in any way interested in or connected with any other party to such contract or transaction, or are themselves parties to such contract or transaction, provided that at the meeting of the Board of Directors or of the committee thereof authorizing or confirming such contract or transaction there shall be present a quorum of directors not so interested or connected, and such contract or transaction shall be approved by a majority of such quorum, which majority shall consist of directors not so interested or connected.

Any contract or act that shall be approved or ratified by the vote of the holders of a majority of the capital stock of the Corporation having voting power which is represented in person or by proxy at any annual meeting of stockholders or at any special meeting called for that purpose, among others, of considering the approval or ratification of the acts of officers and/or directors (provided that a lawful quorum of stockholders be there represented in person or by proxy) shall be as valid and as binding upon the Corporation and upon all of its stockholders as though it had been approved or ratified by every stockholder of the Corporation.

ARTICLE XI: MISCELLANEOUS PROVISIONS

Both stockholders and directors shall have power, if the by-laws so provide, to hold their meetings, and to have one or more offices within or without the State of Delaware, and to keep the books of this Corporation (subject to the provisions of the statutes), outside of the State of Delaware at such places as may be from time to time designated by the Board of Directors, or as provided in the by-laws.

The amount of the authorized stock of any class or classes of the Corporation may be increased or decreased at any time by the affirmative vote of the holders of a majority of the stock entitled to vote. The Corporation reserves the right to create and issue one or more kinds or classes or series of stock with such designations, preferences, redemption or dividend provisions and voting powers or restrictions or qualifications thereof or other such differences as shall be stated or expressed in any certificate, amendatory of its Certificate of Incorporation, duly authorized, executed, recorded and filed in the manner now or hereafter prescribed by the laws of the State of Delaware, and further reserves the right to amend, alter, change or repeal any provision contained in this Certificate, in the manner now or hereafter prescribed by the laws of the State of Delaware, and all rights herein conferred upon the stockholders except as otherwise herein expressly provided are granted subject to this reservation.

Whenever a compromise or arrangement is proposed between this Corporation and its creditors or any class of them and/or between this Corporation and its stockholders or any class of them, any court of equitable jurisdiction within the State of Delaware may, on the application in a summary way of this Corporation or of any creditor or stockholder thereof, or on the application of any receiver or receivers appointed for this Corporation under the provisions of Section 291 to Title 8 of the Delaware Code, or on the application of trustees in dissolution or of any receiver or receivers appointed for this Corporation under the provisions of Section 279 of Title 8 of the Delaware Code, order a meeting of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this Corporation, as the case may be, to be summoned in such manner as the said court directs. If a majority in number representing three-fourths in value of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this Corporation, as the case may be, agree to any compromise or arrangement and to any reorganization of this Corporation as a consequence of such compromise or arrangement, the said compromise or arrangement and the said reorganization shall, if sanctioned by the court to which the said application has been made, be binding on all the creditors or class of creditors, and/or on all the stockholders or class of stockholders of this Corporation, as the case may be, and also on this Corporation.

MONSANTO COMPANY

BY-LAWS

As Amended October 1, 1987

OFFICES

1. *Registered* The name of the registered agent of the Company is The Corporation Trust Company and the registered office of the Company shall be located in the City of Wilmington, County of New Castle, State of Delaware.
2. *Other* The Company shall have its General Offices in the County of St. Louis, State of Missouri, and may also have offices at such other places both within or without the State of Delaware as the Board of Directors may from time to time designate or the business of the Company may require.

STOCKHOLDERS' MEETINGS

3. *Annual Meeting* An annual meeting of Stockholders shall be held on the fourth Friday of April in each year at a time designated by the Board of Directors for the purpose of electing Directors and for the transaction of such other business as properly may come before such meeting. If the day fixed for the annual meeting shall be a legal holiday in the state of the location of such meeting, such meeting shall be held on the next succeeding business day.
4. *Special Meetings* Special meetings of stockholders for any proper purpose or purposes, unless otherwise provided by the law of Delaware, may be called by the Chairman of the Board or President, or pursuant to resolution of the Board of Directors, and shall be called by the Secretary at the request in writing of a majority of the Directors or at the request in writing of stockholders owning a majority of the issued and outstanding shares of the capital stock of the Company entitled to vote thereat. Such request shall state a proper purpose or purposes of the proposed meeting. Business transacted at a special meeting of stockholders shall be confined to the purpose or purposes of the meeting as stated in the notice of the meeting.

5. *Place of Meeting*

All meetings of stockholders shall be held at the General Offices of the Company in the County of St. Louis, State of Missouri, unless otherwise determined by resolution of the Board of Directors.

6. *Notice of Meetings*

Except as otherwise required by the law of Delaware, notice of each meeting of the stockholders, whether annual or special, shall, at least ten days but not more than sixty days before the date of the meeting, be given to each stockholder of record entitled to vote at the meeting by mailing such notice in the United States mail, postage prepaid, addressed to him at his address as the same appears on the records of the Company. Such notice shall state the place, date and hour of the meeting, and in the case of a special meeting, shall also state the purpose or purposes thereof.

7. *List of Stockholders*

(a) The Secretary of the Company shall prepare, at least ten days before each meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least ten days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present.

(b) The stock ledger of the Company shall be the only evidence as to the stockholders entitled to vote in person or by proxy at any meeting of stockholders, or to exercise the rights in accordance with Delaware law to examine the stock ledger, the list required by this By-Law or the books and records of the Company.

8. *Quorum*

The holders of a majority of the stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum for the transaction of any business at all meetings of the stockholders, except as otherwise provided by the law of Delaware, by the Certificate of Incorporation or by these By-Laws. In the absence of a quorum, the stockholders entitled to vote thereat, present in person or by proxy, shall have power to adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present or represented. If the adjournment is for more than thirty days, or if after the adjournment a new record date is fixed for the adjourned

meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. At such adjourned meeting at which the requisite amount of voting stock shall be present or represented, any business may be transacted which might have been transacted at the meeting as originally noticed.

*9. Voting and
Required Vote*

Subject to the provisions of the Certificate of Incorporation, each stockholder shall, at every meeting of stockholders, be entitled to one vote for each share of capital stock held by such stockholder. Except as otherwise provided by the law of Delaware and subject to the provisions of the Certificate of Incorporation, Directors shall be chosen by a plurality of the votes cast at the election, and all other questions shall be determined by a majority of the votes cast on such question. Elections of Directors shall be by written ballot.

10. Proxies

Each stockholder entitled to vote at a meeting of stockholders may authorize another person or persons to act for him by proxy, provided the instrument authorizing such proxy to act shall have been executed in writing (which shall include telegraphing or cabling) by the stockholder himself or by his duly authorized attorney. No proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period.

*11. Inspectors of
Election*

At each meeting of the stockholders the polls shall be opened and closed, the proxies and ballots shall be received, and all questions concerning the qualification of voters and the validity of proxies, and the acceptance or rejection of votes shall be decided by a majority of three Inspectors. Unless otherwise provided by resolution of the Board of Directors, such Inspectors shall be appointed by the Chairman of the Board before the meeting, or in default thereof, by the presiding officer at the meeting, and shall be sworn to the faithful performance of their duties. If any of the Inspectors previously appointed shall fail to attend or refuse or be unable to serve, substitutes shall be appointed in like manner. Such Inspectors need not be stockholders.

12. Organization

The Chairman of the Board of Directors, or in his absence, the President, one of the Vice Chairmen of the Board, if any, in such order as may be designated by the Chairman of the Board, in that order, or in the absence of each of them, a chairman chosen by a majority of the Directors present, shall act as chairman of the meetings of the stockholders. The order of business and the procedure at any meeting of stockholders shall be determined by the chairman of the meeting.

BOARD OF DIRECTORS

13. *General Powers,
Number,
Term of Office* The business of the Company shall be managed under the direction of its Board of Directors. The number of Directors which shall constitute the whole Board shall be fixed, from time to time, by resolutions adopted by the Board, but shall not be less than three persons. Except as hereinafter provided, the Directors shall be elected at the annual meeting of stockholders and each Director shall hold office until his successor is elected and qualified or until his earlier death, resignation or removal. Directors need not be stockholders of the Company or residents of the State of Delaware.
14. *Vacancies* Any vacancy in the office of Director, whether by reason of death, resignation or removal from office, or resulting from an increase in the authorized number of Directors, or otherwise, may be filled by the affirmative vote of a majority of the Directors then in office, although less than a quorum, or by a sole remaining Director. Each such Director shall hold office until his successor is elected and qualified or until his earlier death, resignation or removal.
15. *Regular
Meetings* Following the annual meeting of stockholders, the first meeting of each newly elected Board of Directors may be held, without notice, on the same day and at the same place as such stockholders' meeting. The Board of Directors by resolution may provide for the holding of regular meetings and may fix the times and places at which such meetings shall be held. Notice of regular meetings shall not be required provided that whenever the time or place of regular meetings shall be fixed or changed, notice of such action shall be given promptly to each director, as provided in Section 17 below, who was not present at the meeting at which such action was taken.
16. *Special
Meetings* Special meetings of the Board of Directors shall be held whenever called by the Chairman of the Board of Directors or the President, or in the absence of each of them, by any Vice Chairman of the Board, in such order as may be designated by the Chairman of the Board, or by the Secretary at the written request of two or more Directors.
17. *Notices* Notice of any special meeting of the Board of Directors shall be addressed to each Director at his residence or business address and shall be sent to him by mail, telegram or telex or telephoned or delivered to him personally. If such notice is sent by mail, it shall be sent not later than three days before the day on which the meeting is to be held. If such notice is sent by telegram or telex, it shall be sent not later than 12 hours before the time at which the meeting is to be held. If such notice is telephoned or delivered

personally, it shall be received not later than 12 hours before the time at which the meeting is to be held. Such notice shall state the time, place and purpose or purposes of the meeting.

18. Quorum

One-third of the total number of Directors constituting the whole Board, but not less than two, shall constitute a quorum for the transaction of business at any meeting of the Board of Directors, but if less than such required number of Directors for a quorum is present at a meeting, a majority of the Directors present may adjourn the meeting from time to time without further notice. Except as otherwise specifically provided by the law of Delaware, the Certificate of Incorporation or these By-Laws, the act of a majority of the Directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

19. Organization

At each meeting of the Board of Directors the Chairman of the Board or, in his absence, the President or any Vice Chairman of the Board in such order as may be designated by the Chairman of the Board, in that order, or in the absence of each of them, a chairman chosen by a majority of the Directors present, shall act as chairman of the meeting, and the Secretary or, in his absence, an Assistant Secretary or any employee of the Company appointed by the chairman of the meeting, shall act as secretary of the meeting.

20. Resignations

Any Director may resign at any time by giving written notice to the Chairman of the Board, the President or the Secretary of the Company. Such resignation shall take effect upon receipt thereof or at any later time specified therein; and, unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective.

**21. Action
Without a
Meeting**

Unless otherwise restricted by the Certificate of Incorporation or these By-Laws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if all members of the Board or committee, as the case may be, consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the Board or committee.

**22. Location of
Books**

Except as otherwise provided by resolution of the Board of Directors and subject to the law of Delaware, the books of the Company may be kept at the General Offices of the Company and at such other places as may be necessary or convenient for the business of the Company.

23. Dividends

Subject to the provisions of the Certificate of Incorporation and

the law of Delaware, dividends upon the capital stock of the Company may be declared by the Board of Directors at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the Company's capital stock.

**24. *Compensation
of Directors***

Directors shall receive such compensation and benefits as may be determined by resolution of the Board for their services as members of the Board and committees. Directors shall also be reimbursed for their expenses of attending Board and committee meetings. Nothing contained herein shall preclude any Director from serving the Company in any other capacity and receiving compensation therefor.

**25. *Additional
Powers***

In addition to the powers and authorities by these By-Laws expressly conferred upon it, the Board of Directors may exercise all such powers of the Company and do all such lawful acts and thing as are not by statute or by the Certificate of Incorporation or by these By-Laws directed or required to be exercised or done by the stockholders.

COMMITTEES OF DIRECTORS

**26. *Designation,
Power,
Alternate
Members***

The Board of Directors may, by resolution or resolutions passed by a majority of the whole Board, designate an Executive Committee and one or more additional committees, each committee to consist of two or more of the Directors of the Company. Any such committee, to the extent provided in said resolution or resolutions, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the Company. The Board of Directors may designate one or more Directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. If at a meeting of any committee one or more of the members thereof is absent or disqualified, and if either the Board of Directors has not so designated any alternate member or members, or the number of absent or disqualified members exceeds the number of alternate members who are present at such meeting, then the member or members of such committee (including alternates) present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another Director to act at the meeting in the place of such absent or disqualified member. The term of office of the members of each committee shall be as fixed from time to time by the Board; provided, however, that any committee member who ceases to be a member of the Board shall ipso facto cease to be a committee member.

27. *Quorum,
Manner of
Acting*

At any meeting of a committee, the presence of one-third, but not less than two, of its members then in office shall constitute a quorum for the transaction of business; and the act of a majority of the members present at a meeting at which a quorum is present shall be the act of the committee. Each committee may provide for the holding of regular meetings, make provision for the calling of special meetings and, except as otherwise provided in these By-Laws or by resolution of the Board of Directors, make rules for the conduct of its business.

28. *Minutes*

The committees shall keep minutes of their proceedings and report the same to the Board of Directors when required; but failure to keep such minutes shall not affect the validity of any acts of the committee or committees.

ADVISORY DIRECTORS

29. *Advisory
Directors*

The Board of Directors may, by resolution adopted by a majority of the whole Board, appoint such number of senior executives of the Company as Advisory Directors as the Board may from time to time determine. The Advisory Directors shall have such advisory responsibilities as the Chairman of the Board may designate and the term of office of such Advisory Directors shall be as fixed by the Board.

OFFICERS

30. *Designation*

The officers of the Company shall be a Chairman of the Board, and a President, one of whom shall be designated by the Board of Directors as the Chief Executive Officer, one or more Vice Presidents, a Secretary, a Treasurer and a Controller. The Board of Directors may also elect one or more Vice Chairmen of the Board, one or more Executive Vice Presidents, Senior Vice Presidents, Group Vice Presidents, Deputy and Assistant Secretaries, Deputy and Assistant Treasurers, Deputy and Assistant Controllers and such other officers as it shall deem necessary. Any number of offices may be held by the same person. The Chairman of the Board of Directors, the President and the Vice Chairmen of the Board shall be chosen from among the Directors.

31. *Election and
Term*

At its first meeting after each annual meeting of stockholders, the Board of Directors shall elect the officers of the Company and at any time thereafter the Board may elect additional officers of the Company, and each such officer shall hold office until his successor is elected and qualified or until his earlier death, resignation or removal.

- 32. Removal** Any officer shall be subject to removal or suspension at any time, for or without cause, by the affirmative vote of a majority of the whole Board of Directors.
- 33. Resignations** Any officer may resign at any time by giving written notice to the Chairman of the Board, the President or to the Secretary. Such resignation shall take effect upon receipt thereof or at any later time specified therein, and, unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective.
- 34. Vacancies** A vacancy in any office because of death, resignation, removal or any other cause may be filled for the unexpired portion of the term by the Board of Directors.
- 35. Compensation** The salaries of all vice presidents and higher ranking officers of the Company shall be fixed by the Executive Compensation and Development Committee of the Board of Directors.
- 36. Chairman of the Board** The Chairman of the Board shall preside at all meetings of the stockholders and of the Board of Directors, except as may be otherwise required under the law of Delaware. He shall act in an advisory capacity with respect to matters of policy and other matters of importance pertaining to the affairs of the Company. He, alone or with the President, one or more of the Vice Chairmen of the Board, and/or the Secretary shall sign and send out reports and other messages which are to be sent to stockholders from time to time. He shall also perform such other duties as may be assigned to him by these By-Laws, the Board of Directors or, if applicable, the Chief Executive Officer.
- 37. President** The President shall, in the absence of the Chairman of the Board, preside at all meetings of the stockholders and of the Board of Directors. He shall perform such other duties as may be assigned to him by these By-Laws, the Board of Directors or, if applicable, the Chief Executive Officer.
- 38. Chief Executive Officer** The Chief Executive Officer shall have the general and active management and supervision of the business of the Company. He shall see that all orders and resolutions of the Board of Directors are carried into effect. He shall also perform such other duties as may be assigned to him by these By-Laws or the Board of Directors. The Chief Executive Officer shall designate who shall perform the duties of the Chief Executive Officer in his absence.
- 39. Vice Chairmen of the Board** The Vice Chairmen of the Board shall, in the absence of the Chairman of the Board and the President, and in such order as may be designated by the Chairman of the Board, preside at all

meetings of the stockholders and of the Board of Directors. They shall perform such other duties as may be assigned to them by these By-Laws, the Board of Directors or the Chief Executive Officer.

*40. Executive,
Senior, Group
and other
Vice Presidents*

Each Executive Vice President, Senior Vice President, Group Vice President and each other Vice President shall perform the duties and functions and exercise the powers assigned to him by the Board of Directors or the Chief Executive Officer.

41. Secretary

The Secretary shall attend all meetings of the Board of Directors and of the stockholders and record all votes and the minutes of all proceedings in a book to be kept for that purpose. He shall give, or cause to be given, notice of all meetings of the stockholders and special meetings of the Board of Directors and, when appropriate, shall cause the corporate seal to be affixed to any instruments executed on behalf of the Company. The Secretary shall also perform all duties incident to the office of Secretary and such other duties as may be assigned to him by these By-Laws, the Board of Directors, the Chairman of the Board or the Chief Executive Officer.

*42. Assistant
Secretaries*

The Assistant Secretaries shall, during the absence of the Secretary, perform the duties and functions and exercise the powers of the Secretary. Each Assistant Secretary shall perform such other duties as may be assigned to him by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the Secretary.

43. Treasurer

The Treasurer shall have the custody of the funds and securities of the Company and shall deposit them in the name and to the credit of the Company in such depositories as may be designated by the Board of Directors or by any officer or officers authorized by the Board of Directors to designate such depositories; disburse funds of the Company when properly authorized by vouchers prepared and approved by the Controller; and invest funds of the Company when authorized by the Board of Directors or a committee thereof. The Treasurer shall render to the Board of Directors, the Chief Executive Officer, the Senior Vice President-Finance or the Vice President-Finance, whenever requested, an account of all his transactions as Treasurer and shall also perform all duties incident to the office of Treasurer and such other duties as may be assigned to him by these By-Laws, the Board of Directors, the Chief Executive Officer, the Senior Vice President-Finance or the Vice President-Finance.

*44. Assistant
Treasurers*

The Assistant Treasurers shall, during the absence of the Treasurer, perform the duties and functions and exercise the powers of

the Treasurer. Each Assistant Treasurer shall perform such other duties as may be assigned to him by the Board of Directors, the Chief Executive Officer, the Senior Vice President-Finance, the Vice President-Finance or the Treasurer.

45. *Controller*

The Controller shall keep full and accurate account of receipts and disbursements in books of the Company and render to the Board of Directors, the Chief Executive Officer, the Senior Vice President-Finance or the Vice President-Finance, whenever requested, an account of all his transactions as Controller and of the financial condition of the Company. The Controller shall also perform all duties incident to the office of Controller and such other duties as may be assigned to him by these By-Laws, the Board of Directors, the Chief Executive Officer, the Senior Vice President-Finance or the Vice President-Finance.

**46. *Assistant
Controllers***

The Assistant Controllers shall, during the absence of the Controller, perform the duties and functions and exercise the powers of the Controller. Each Assistant Controller shall perform such other duties as may be assigned to him by the Board of Directors, the Chief Executive Officer, the Senior Vice President-Finance, the Vice President-Finance or the Controller.

COMPANY CHECKS, DRAFTS AND PROXIES

**47. *Checks,
Drafts***

All checks, drafts or other orders for the payment of money by the Company shall be signed by such person or persons as from time to time may be designated by the Board of Directors or by any officer or officers authorized by the Board of Directors to designate such signers; and the Board of Directors or such officer or officers may determine that the signature of any such authorized signer may be facsimile.

48. *Proxies*

Except as otherwise provided by resolution of the Board of Directors, the Chairman of the Board, the President, any Vice Chairman of the Board, any Executive Vice President, any Senior Vice President, any Group Vice President and any other Vice President shall each have full power and authority, in behalf of the Company, to exercise any and all rights of the Company with respect to any meeting of stockholders of any corporation in which the Company holds stock, including the execution and delivery of proxies therefor, and to consent in writing to action by such corporation without a meeting.

CAPITAL STOCK

**49. *Stock
Certificates***

Each holder of stock in the Company shall be entitled to have a certificate signed by, or in the name of the Company by, the Chair-

man of the Board, the President, any Vice Chairman of the Board, any Executive Vice President, any Senior Vice President, any Group Vice President or any other Vice President, and by the Secretary or any Assistant Secretary of the Company certifying the number of shares owned by him in the Company. Any of or all the signatures on the certificate may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Company with the same effect as if he or it were such officer, transfer agent or registrar at the date of issue.

**50. *Record
Ownership***

The Company shall be entitled to treat the person in whose name any share, right or option is registered as the owner thereof, for all purposes, and shall not be bound to recognize any equitable or other claim to or interest in such share, right or option on the part of any other person, whether or not the Company shall have notice thereof, except as otherwise provided by the law of Delaware.

**51. *Record
Dates***

In order that the Company may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which shall not be more than sixty nor less than ten days before the date of such meeting, nor more than sixty days prior to any other action.

**52. *Transfer of
Stock***

Transfers of shares of stock of the Company shall be made only on the books of the Company by the registered holder thereof, or by his attorney thereunto authorized by power of attorney duly executed and filed with the Secretary or a transfer agent of the Company, and on surrender of the certificate or certificates for such shares properly endorsed and the payment of all taxes thereon.

**53. *Lost, Stolen or
Destroyed
Certificates***

The Board of Directors may authorize a new certificate or certificates to be issued in place of any certificate or certificates theretofore issued by the Company alleged to have been lost, stolen or destroyed, upon the making of an affidavit of the fact by the person claiming the certificate of stock to be lost, stolen or destroyed. When authorizing such issue of a new certificate or certificates, the Board of Directors may, in its discretion and as

condition precedent to the issuance thereof, require the owner of such lost, stolen or destroyed certificate or certificates, or his legal representative, to give the Company a bond sufficient to indemnify it against any claim that may be made against the Company on account of the alleged loss, theft or destruction of such certificate or the issuance of such new certificate.

54. *Terms of Preferred Stock*

The provisions of these By-Laws, including those pertaining to voting rights, election of Directors and calling of special meetings of stockholders, are subject to the terms, preferences, rights and privileges of any then outstanding class or series of Preferred Stock as set forth in the Certificate of Incorporation and in any resolutions of the Board of Directors providing for the issuance of such class or series of Preferred Stock; provided, however, that the provisions of any such Preferred Stock shall not affect or limit the authority of the Board of Directors to fix, from time to time, the number of Directors which shall constitute the whole Board as provided in Section 13 above, subject to the right of the holders of any class or series of Preferred Stock to elect additional Directors as and to the extent specifically provided by the provisions of such Preferred Stock.

INDEMNIFICATION

55. *Indemnification*

(a) The Company shall indemnify and hold harmless, to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any person who was or is made or is threatened to be made a party or is otherwise involved in any claim, action, suit, or proceeding, whether civil, criminal, administrative or investigative (a "proceeding") by reason of the fact that he, or a person for whom he is the legal representative, is or was a Director, officer, employee or agent of the Company or is or was serving at the request of the Company as a director, officer, employee, fiduciary or agent of another corporation or of a partnership, joint venture, trust, non-profit entity, or other enterprise, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys' fees) reasonably incurred by such person. The Company shall indemnify a person in connection with a proceeding initiated by such person or a claim made by such person against the Company only if such proceeding or claim was authorized by the Board of Directors of the Company.

(b) The Company shall pay the expenses incurred in defending any proceeding in advance of its final disposition, *provided, however*, that the payment of expenses incurred by any person covered hereunder in advance of the final disposition of the proceeding shall be made only upon receipt of an undertaking by or on behalf

of the affected person to repay all amounts advanced if it should ultimately be determined that such person is not entitled to be indemnified under this By-Law or otherwise.

(c) If a claim for indemnification or payment of expenses under this By-Law is not paid in full within ninety days, or such other period as might be provided pursuant to contract, after a written claim therefor has been received by the Company, the claimant may file suit to recover the unpaid amount of such claim or may seek whatever other remedy might be provided pursuant to contract. In any such action the Company shall have the burden of proving that the claimant was not entitled to the requested indemnification or payment of expenses under applicable law. If successful in whole or in part, claimant shall be entitled to be paid the expense of prosecuting such claim.

(d) The rights conferred on any person by this By-Law shall not be exclusive of any other rights which such person may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, these By-Laws, agreement, vote of stockholders or disinterested Directors or otherwise.

(e) Any repeal or modification of the foregoing provisions of this By-Law 55 shall not adversely affect any right or protection hereunder of any person with respect to any act or omission occurring prior to or at the time of such repeal or modification.

MISCELLANEOUS

56. *Corporate Seal*

The seal of the Company shall be circular in form, containing the words "Monsanto Company" and the word "Delaware" on the circumference surrounding the word "Seal." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or in any other manner reproduced.

57. *Fiscal Year*

The fiscal year of the Company shall begin on the first day of January in each year.

58. *Auditors*

The Board of Directors shall select certified public accountants to audit the books of account and other appropriate corporate records of the Company annually and at such other times as the Board shall determine by resolution.

59. *Waiver of Notice*

Whenever notice is required to be given pursuant to the law of Delaware, the Certificate of Incorporation or these By-Laws, a written waiver thereof, signed by the person entitled to notice,

whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting of stockholders or the Board of Directors or a committee thereof shall constitute a waiver of notice of such meeting, except when the stockholder or Director attends such meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders or the Board of Directors or committee thereof need be specified in any written waiver of notice unless so required by the Certificate of Incorporation or by these By-Laws.

AMENDMENT TO BY-LAWS

60. Amendments

These By-Laws may be altered, amended or repealed by the affirmative vote of a majority of the stock issued and outstanding and entitled to vote, cast at any annual or special meeting of the stockholders or by the affirmative vote of a majority of the whole Board of Directors at any regular or special meeting of the Board of Directors.

EMERGENCY BY-LAWS

These Emergency By-Laws, notwithstanding any different provision in the Certificate of Incorporation or By-Laws, shall be operative during any emergency resulting from an attack on the United States or on a locality in which the Company conducts its business or customarily holds meetings of the Board of Directors or its stockholders, or during any nuclear or atomic disaster, or during the existence of any catastrophe, or other similar emergency condition, as a result of which a quorum of the Board of Directors or a committee thereof cannot be readily convened for action. These Emergency By-Laws shall cease to be operative upon termination of such emergency.

During any such emergency:

(a) A meeting of the Board of Directors or a committee thereof may be called by any officer or Director. Notice of the time and place of the meeting shall be given by the person calling the meeting to only such of the Directors as it may be feasible to reach at the time and by such means as may be feasible at the time. Such notice shall be given at such time in advance of the meeting as circumstances permit in the judgment of the person calling the meeting.

(b) The officers or other persons designated on a list approved by the Board of Directors before the emergency, all in such order or priority and subject to such conditions and for such period of time (not longer than reasonably necessary after the termination of the emergency) as may be provided in the resolution approving the list, shall, to the extent required to constitute a quorum at any meeting of the Board of Directors during the emergency, be deemed Directors for such meeting. If at the time of the emergency the Board of Directors has not approved such a list of persons, then to the extent required to constitute a quorum at any meeting of the Board of Directors during the emergency, the officers of the Company who are present shall be deemed, in order of rank and within the same rank in order of seniority, Directors for such meeting. Two Directors (including persons deemed to be Directors) in attendance at the meeting shall constitute a quorum.

(c) The Board of Directors, either before or during any such emergency, may provide, and from time to time modify, lines of succession in the event that during such an emergency any or all officers or agents of the Company shall for any reason be rendered incapable of discharging their duties.

(d) The Board of Directors, either before or during any such emergency, may, effective in the emergency, change the General Offices or designate several alternative General Offices or regional offices, or authorize an officer, or officers, so to do.

No officer, Director or employee acting in accordance with these Emergency By-Laws shall be liable except for willful misconduct.

These Emergency By-Laws shall be subject to repeal or change by further action of the Board of Directors or by action of the stockholders, but no such repeal or change shall modify the provisions of the next preceding paragraph with regard to action taken prior to the time of such repeal or change. Any amendment of these Emergency By-Laws may make any further or different provision that may be practical and necessary for the circumstances of the emergency.